Final Report

AN UPDATE OF THE PROJECTED IMPACTS TO CLARK COUNTY AND LOCAL GOVERNMENTAL PUBLIC SAFETY AGENCIES RESULTING FROM THE TRANSPORTATION OF HIGH-LEVEL NUCLEAR WASTE TO YUCCA MOUNTAIN

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EXECUTIVE SUMMARY

This report updates the 2001 public safety fiscal cost projections for Clark County and local government public safety agencies arising from potential impacts of transporting high-level nuclear waste through Clark County to the Yucca Mountain Repository. The projected fiscal costs reported in this study reflect only the additional costs that are a direct result of the repository and the shipping campaign. The fiscal costs of these unfunded public safety mandates emanating from the transportation of high-level nuclear waste to public safety agencies, Clark County, and the cities of Las Vegas, North Las Vegas, Henderson and Mesquite, are provided. The public safety agencies that are charged with protecting the health, safety and welfare of citizens in the event of an emergency are covered in this report include fire, police and emergency management.

This study uses a refined methodology that was employed in the 2001 Public Safety reports. In late 2004 and early 2005, agencies were provided with updated Department of Energy (DOE) plans taken from the 2002 Final Environmental Impact Statement (FEIS) for Yucca Mountain and other DOE documents. A major effort was made to refine our understanding of the potential costs of these impacts. Specifically, the refinements in this report include the elimination of redundancy in emergency management costs across jurisdictions; the use of consistent modeling among all jurisdictions; and, the implementation of twenty-four (24) year projection models that include maintenance, life cycle or useable life projections for equipment, inflation and other recurring costs. These costs are projected over the entire U.S. Department of Energy's estimated 24-year span of the transportation campaign. Hence, cost projections are provided for both the startup in 2010, as well as for the entire transportation campaign. This report, by providing cost estimates to governmental entities that span the total shipping campaign, will allow decision makers to view the projected cumulative total cost and fiscal impacts to public safety agencies for the first time.

Because of the increased information on DOE shipping plans and transportation modes, as well as the development in the FEIS of a Maximum Reasonably Foreseeable Accident (MRFA), local public safety agency personnel have far more detailed information than in 2001. In addition, the information used in projecting costs by the agencies in 2005, is much more closely aligned and tied to DOE planning and analysis

than it could be in 2001. For example, the study utilizes two scenarios one which posits a mostly rail shipping campaign and one with a mostly truck campaign along with the likely shipping routes that are consistent with the DOE's FEIS. Fiscal impact analysis increases in reliability as information about agency planning becomes finalized, and as agency personnel become more familiar with projects and their potential impacts. Hence, the projections in this 2005 report are more specific and refined than those provided in 2001. In the current projections, the public safety agencies have reduced some costs by eliminating some equipment and personnel needs they originally thought important while they have identified other resource needs that were previously overlooked. In examining the projected cost estimates, one should remember that a case study and marginal fiscal cost analysis method has been employed and that these cost estimates represent only those directly attributable to the proposed repository siting and the shipment of waste. That is, the impacts and their costs are only those expenses that would not have been incurred by the public safety agency if there were no repository and shipping campaign.

The projected costs for all of the public safety agencies at the start of the proposed shipping campaign in 2010 total $385,245,516. Over the entire 24-year period of shipping high-level nuclear waste, the projected impact totals $3,719,031,513 to the public safety agencies in Clark County and the local jurisdictions. On the following page, Table 1 provides the total projected costs of public safety functions for each jurisdiction at the proposed beginning of the repository in 2010, and for the entire anticipated 24-year shipping campaign.

Table 1 Public Safety Projected Fiscal Impacts for Clark County and Local Jurisdictions at 2010 and for 24-year Shipping Campaign

		2010 Base Case**	24-year Totals
Clark County	Fire	$244,246,123	$2,058,613,280
	Police*	$31,610,989	$394,323,975
	Emergency Management	$15,472,500	$100,111,088
Total		**$291,329,612**	**$2,553,048,343**
City of Las Vegas	Fire	$51,561,333	$526,590,127
	Police*		
	Emergency Management	$1,878,000	$36,355,329
Total		**$53,439,333**	**$562,945,456**
North Las Vegas	Fire	$29,920,000	$310,547,085
	Police	$711,022	$9,506,627
	Emergency Management	$325,000	$12,186,992
Total		**$30,956,022**	**$332,240,705**
Henderson	Fire	$159,764	$6,243,993
	Police	$495,870	$14,960,709
	Emergency Management	$74,864	$664,309
Total		**$730,498**	**$21,869,011**
Mesquite	Fire	$5,151,749	$151,079,502
	Police	$3,628,302	$97,800,906
	Emergency Management	$10,000	$47,590
Total		**$8,790,051**	**$248,927,998**
Combined Total		**$385,245,516**	**$3,719,031,513**

***** Police refers to the Las Vegas Metropolitan Police Department (METRO) which is a jointly funded police force by Clark County and the City of Las Vegas. The projections for METRO have all been placed under Clark County projections

******Base case is the cost incurred for shipping to commence.

1.0 INTRODUCTION

This report updates the 2001 public safety fiscal cost projections for Clark County and local governmental public safety agencies arising from the potential impacts of transporting high-level nuclear waste through Clark County to the Yucca Mountain Repository (Urban Environmental Research, 2001 a-g; Clark County 2002). Specifically, the public safety fiscal cost projections of the planned transportation of high-level radioactive waste (HLW) is provided for Clark County and the cities of Las Vegas, North Las Vegas, Henderson, and Mesquite. The focus on public safety agencies in this report is a direct result of their programmatic focus and mission, as well as their needs being explicitly recognized in the Nuclear Waste Policy Act, the Nuclear Waste Policy Act Amendments and in the Department of Energy's (DOE) Final Environmental Impact Assessment for Yucca Mountain. These public safety agencies are charged with protecting the health, safety and welfare of citizens in the event of an emergency, and they must be prepared to respond to radiological incidents.

In the 2001 reports projecting the fiscal costs on public safety agencies, each of the communities, Clark County and the Moapa Band of Paiute Indians, were the subject of a separate report that examined the organizational structure of their public safety agencies, their current capacity, funding and the service standard they employed (UER, 2001 b-g). The studies were then integrated into a final report for Clark County (UER, 2001a). This report follows the format of the previous integrated public safety impact report by providing fiscal cost projections for the public safety agencies in the communities listed above. However, the major effort here is to extend our understanding of these fiscal estimates, by projecting them over the entire 24-years of a transportation campaign. Additionally, one of the results of the effort has been the construction of a model that enables public safety agencies to identify their needs and facilitates the determination of the fiscal costs of these impacts.

The fiscal impacts from transporting HLW on public safety agencies that are projected in this report utilize a refined methodology employed in the 2001 studies, as well as the studies that were performed on Nevada state agencies from 1987 through 1998 (Mushkatel, 1988, 1989; Planning Information Corporation and Mushkatel, 1998).

Because the methodological considerations of utilizing the case study and the marginal fiscal cost impact analysis were discussed so thoroughly, in the 2001 reports for Clark County and the previous Nevada studies, only a brief overview is provided here. This discussion is followed by an explanation of the new scenarios that drive the study and are derived from the DOE's Final Environmental Impact Assessment for Yucca Mountain. Following the discussion of the new scenarios, a detailed analysis of the Clark County Fire Department (CCFD) is provided in order to view the process they utilized in projecting impacts from the scenarios and their associated fiscal impacts. Finally, the projected fiscal impact on public safety agencies in each of the communities is addressed.

It is essential to note one important aspect of this and previous studies examining the fiscal impacts of the Yucca Mountain project on the public safety agencies. What is being projected is not the total fiscal cost or the budget of Clark County or any local jurisdiction public safety agency. Rather, the projections in this report are the result of focusing on the increment or any additional cost to these agencies that is directly attributable to the repository's siting and the related HLW transportation shipping campaign. Hence, the cost estimates represent the fiscal impacts associated with public safety agencies needs to ensure public safety that are directly attributable to the transportation of HLW, and they would not be incurred by these governmental agencies in the absence of a repository or shipping campaign.

1.1 An Overview of Fiscal Impact Analysis Methods

Two types of fiscal impact analysis have dominated efforts to estimate the impacts of the growth of governmental services (Ohm, 2005). These same two types of fiscal impact analysis are used in the intergovernmental literature when attempting to estimate the costs of unfunded mandates (Mushkatel and Pijawka, 1995). The first method for estimating or projecting costs is the average costing method and the second is the marginal cost analysis. Both methods are designed to measure projected costs to government from future development or projected actions (Burchell and Listokin, 1980; Burchell, et al. 1990). The average costing approach focuses on population or employment multiplier after establishing an average cost per unit of service and then assesses the additional demand for that service resulting from a project. There is often little consideration of either existing excess or deficient capacity to provide the service by

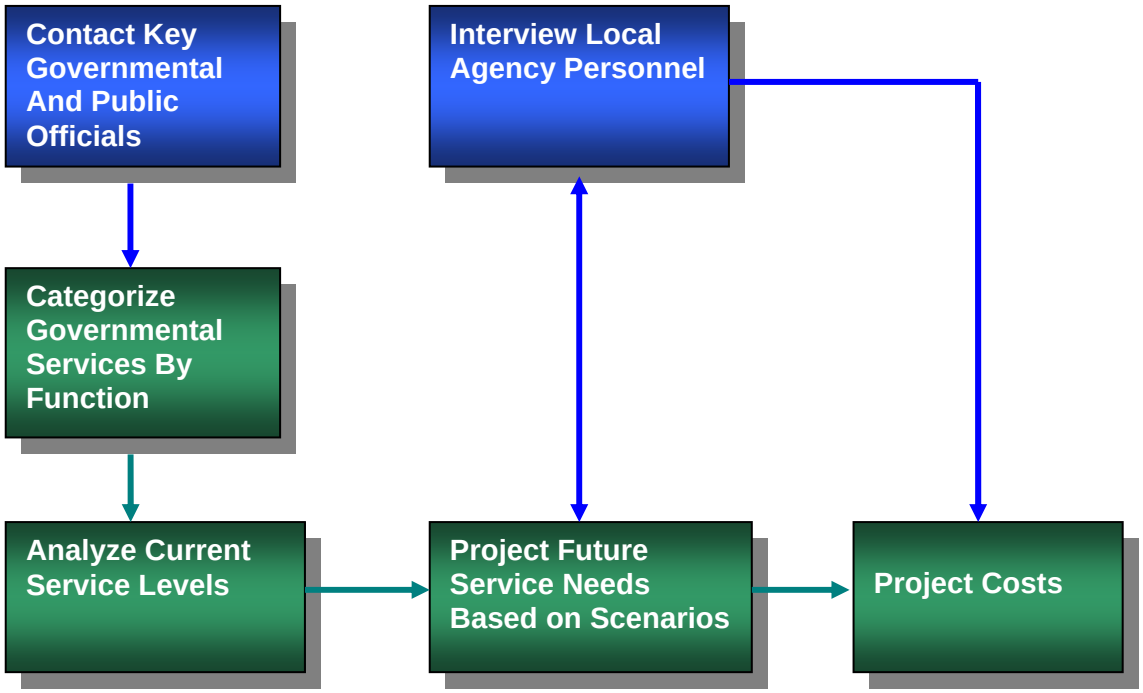
the local entity. That is, a new project, growth or an unfunded mandate may find that existing capacity is inadequate to provide for the new demand for a governmental service. The new demand for services may require new capital construction, equipment, personnel or additional training and result in a community being unable to meet the new demands (or unfunded mandate requirements) without assuming excessive new costs.

A second method of estimating fiscal cost impacts is marginal cost analysis, which examines the current capacity to provide services and determines whether additional demands may push the community past the threshold of its ability to provide the needed services. Marginal analysis does not assume governmental services are linear, but rather some are "lumpy" and may require new infrastructure to serve additional demand, which may have a considerably higher than average cost (Ohm, 2005). The series of 2001 studies examining the fiscal impact on public safety agencies in Clark County utilized a marginal costing technique based on current capacity. The marginal cost analysis is not driven by a project or proposed development, but rather by a scenario, or three scenarios in the case of the 2001studies. Each community and its public safety agencies are viewed as a case study for the fiscal marginal cost analysis. The underlying assumption is that they differ in the degree to which they exhibit excess or deficient capacity (Burchell and Listokin, 1980; Burchell, et al. 1990).

A second assumption of the analysis is that marginal changes in service demand or need may result from the scenarios and that the cost of these changes are a reaction to service excesses or deficiencies based on the capacity of the agency or community. The third assumption underlying the projections is that local standards in large part represent the criteria by which local excess and deficient service levels will be measured. The case study of the CCFD provides an excellent example of the utilization of existing service standards and mission to determine whether current infrastructure is adequate to meet the increased service demands that will result from the two transportation scenarios used in the study (CCFD, 2002a). Finally, the last assumption is that local department heads and personnel are the individuals best suited and most knowledgeable about their agency's service capacity and about the future needs associated future service needs associated with new projects or mandates. In each community studied, the steps taken to implement

the case study methodology in conjunction with the public service agencies are provided diagrammatically in Figure 1 and are discussed more fully in Appendix A.

Figure 1 Methodological Approach



The case study fiscal impact analysis method was used for projecting fiscal cost to public safety agencies for each of the governmental entities in this study. However as noted earlier, the scenarios used in this study differ substantially from those used in the 2001 studies.

1.2 The 2005 Study Scenarios

In all of the public safety agencies examined in 2001, the current capacity was determined to be inadequate to respond to a major radiological incident or what is termed a major reasonably foreseeable accident (MRFA). The three scenarios used in 2001 were based on the best available information at the time. The scenarios included information from both the DOE's Draft Environmental Impact Statement for the first two scenarios, as well as information from the State of Nevada's Nuclear Projects Office transportation expert for the third (See Appendix B for a summary of the 2001 scenarios). The 2001 scenarios included a "benign" future shipping campaign beginning in 2007 entailing no accident of any kind. The second scenario used in 2001 involved an accident in which a cask containing HLW breaks free, but remains intact with no release of radiation. Finally, the third scenario entailed a serious accident in which radioactive waste materials are dispersed over a wide area. This third scenario became the MRFA for almost all of the public safety agencies involved in the 2001 series of community studies.

However, in February 2002 the DOE's Office of Civilian Radioactive Waste Management released the Final Environmental Impact Statement for Yucca Mountain outlining what it believed was the worst accident case. In order to maintain as close a tie as possible to the DOE's planning, this worst case was adopted into the current study as the MRFA. In past studies of the State of Nevada's public safety agencies, two trends were noted. First, over time, as more information became available, agency personnel became far more confident in their estimates of how the Yucca Mountain project would affect their agency. Second, the scenarios that were used play an important part in their planning for the project and thus their fiscal projections (Planning Information Corporation and Mushkatel, 1998). Hence, the question of how the new scenarios with a change in the MRFA would affect the impact projections was an important consideration in planning this study. Eventually, it was decided that the importance of aligning the scenarios as closely with the DOE's planning and analysis should be paramount in the fiscal impact analysis. In addition, it became clear that in addition to estimating the fiscal impact at one point in time (the estimated time shipping would begin), it also would provide more insight in the actual projected fiscal impacts by attempting to project these costs throughout the entire 24-year shipping campaign.

The scenarios as they were presented to the public safety personnel in the 2005 study are provided in Appendix C. The new materials were discussed with public safety personnel, along with the new MRFA (discussed below). The two scenarios contained a mostly rail shipments and a mostly truck shipments scenario based on the DOE Final Environmental Impact Statement (Appendix J-11). In addition, the scenarios used in this study showed the potential DOE rail and shipment routes through Nevada that were contained in Chapter 6 of the FEIS. The rail route map contained the 513 kilometer Calliente Corridor that DOE hopes will be constructed in order to by-pass the rail line through downtown Las Vegas (Appendix C). In both, the mostly rail and mostly truck, scenarios there are shipments that will pass through Clark County's urbanized population beginning in 2010. A summary of the key details of the mostly truck scenario includes:

Shipments Planned Under Mostly Truck Scenario

Total number of legal-weight truck shipments over a 24-year shipping period:	**52,786**
Number of shipments per year	**2,199**
Number of shipments per week	**42**
Number of shipments per day	**6**

*There are **two principal** shipment routes for these truck shipments (See attached map1 for these route depictions).*

For 45,919 of the legal-weight shipments:

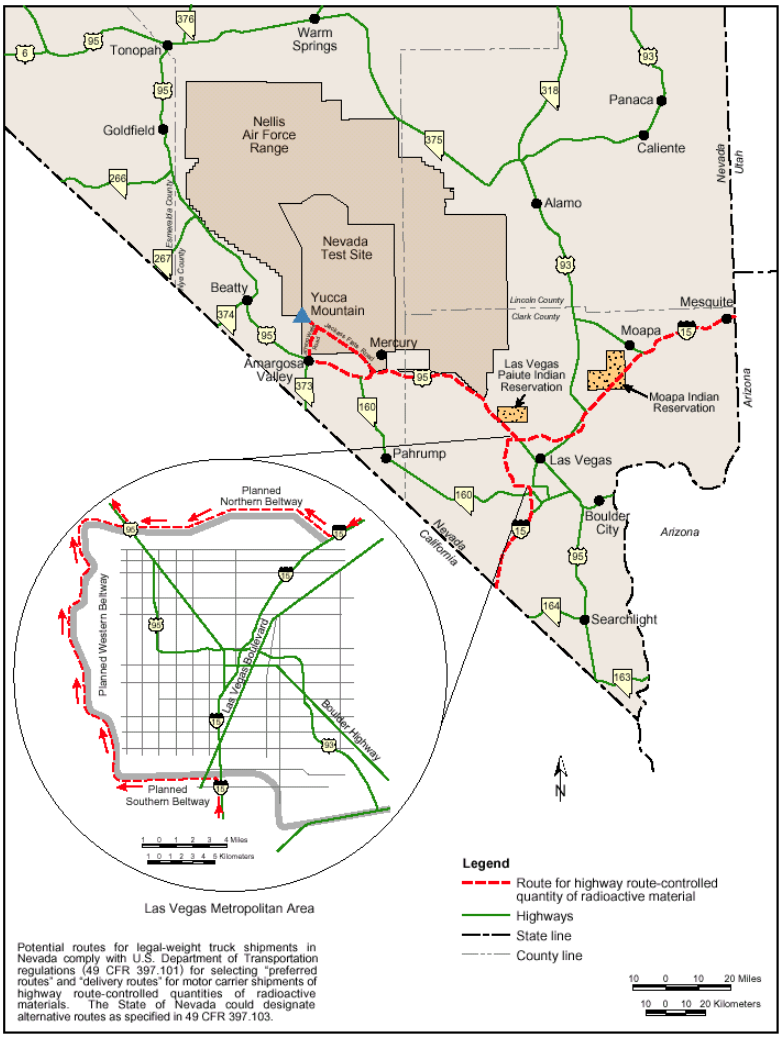
- **I-15 entering Clark County from Arizona via I-15 at Mesquite**
- **I-15 continuing on and traversing the Moapa Reservation to the**
- **Northern Beltway continuing on to**
- **U.S. 95 north traversing the Las Vegas Pauite Reservation to the repository**

For 6,867 of the legal-weight shipments:

- **I-15 entering Clark County from California at Primm to the**
- **Southern Beltway continuing on to**
- **U.S. 95 traversing the Las Vegas Pauite Reservation to the repository**

The potential trucking routes via Interstate 15 from the north and south end of the Las Vegas valley are further depicted in the maps in Appendix C (the material used with the public safety personnel) and in Figure 2.

Figure 2 Potential Truck Routes



Source: Hinze, D. 2005. Potential Nevada Routes for Legal Weight Truck Shipments of Spent Nuclear Fuel and High-Level Radioactive Waste. http://www.landercountynwop.com/Maps/s-12.gif. retrieved June 20th, 2005.

In addition, the mostly truck scenario contains 100-300 train shipments from INEEL in Idaho involving Multi Purpose Canisters that will be downloaded at an intermodal transfer facility, at or near Apex, onto heavy haul trucks. These trucks will be 200+ feet long vehicles and will be very slow moving. These vehicles will enter the I-15 at U.S. 93 or at State Route 604 (see map Appendix C) to the Northern Beltway and traverse the Las Vegas Paiute Reservation.

The major elements of the mostly rail shipments scenario includes:

Shipments Planned Under the Mostly Rail Scenario

Total number of rail shipments through *Clark County* over a 24-year shipping period	**194-594**
Total number of rail cask shipments that *would not* travel through Clark County	**8,896-9,052**

Principal Rail Shipment Routes (see attached map 2)

For the roughly 594 rail cask shipments:

- **Enter Clark County from CA. on the Union Pacific Main Line and**
- **Traverse Downtown Las Vegas and**
- **Travel to the Caliente Rail Spur Traversing the Moapa Indian Reservation**

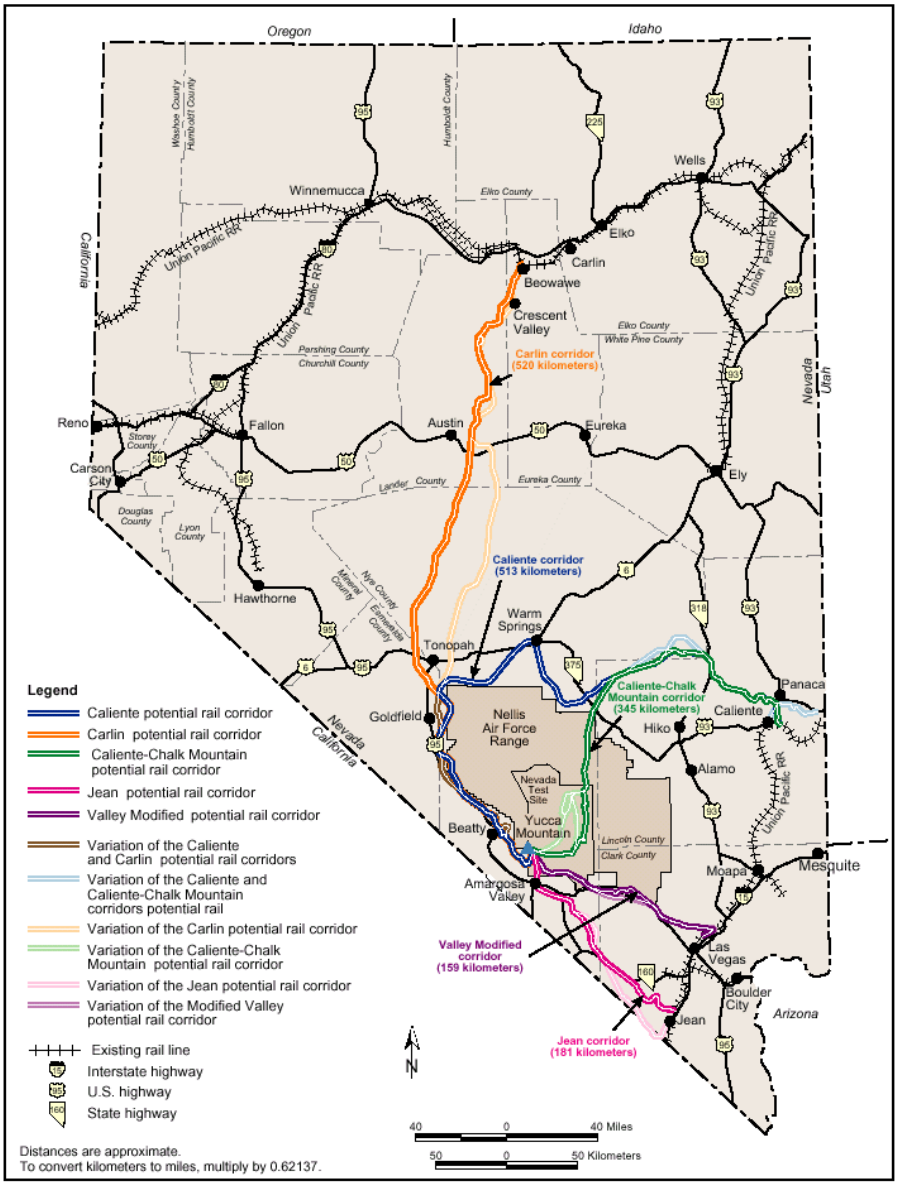
Under the mostly rail shipment scenario there are approximately 1,079 legal-weight truck shipments into Clark County.

The shipment plan for these 1,079 legal-weight trucks:

- **I-15 entering Clark County from Arizona via I-15 at Mesquite**
- **I-15 continuing on and traversing the Moapa Reservation to the**
- **Northern Beltway continuing on to**
- **U.S. 95 traversing the Las Vegas Pauite Reservation to the repository**

The map for the rail shipments is found in Appendix C (the material used with the public safety personnel) and in Figure 3.

Figure 3 Potential Rail Routes



Source: Hinze, D. 2005. Potential Nevada Rail Routes Yucca Mountain http://www.landercountynwop.com/Maps/s-26.gif. retrieved June 20th, 2005.

In addition, the public safety personnel were provided with a discussion of the accident rates projected by both the DOE (DOE, 2002: Chapter 6 and Appendix J), as well as accident rates estimated by the transportation consultant to the Nevada Nuclear Projects Office (Appendix C). While accident rates are important, most of the public safety personnel in the study were focused on the MRFA (DOE, 2002: Appendix J-69).

The most likely MRFA for both rail and truck, according to the DOE's FEIS is a long duration high-temperature fire that would engulf a cask. While the DOE's analysis suggests that such an MRFA is highly unlikely, it can not be ruled out. The Baltimore Tunnel fire that occurred July 18, 2001 involved a CSX freight train, which partially derailed in the Howard Street Tunnel. Four of the cars that derailed were tankers carrying flammable and hazardous chemicals. A fire ensued when one of the tankers ruptured. It created an inferno that engulfed the tunnel and paralyzed the downtown area for several days (Associated Press, April 13, 2005:3). The MRFA with a similar scenario became what the "CCFD must be prepared to handle" in planning for their needs (Geldbach-Hall, May 2005).

Before discussing the specific cost projections for each of the governmental agencies and entities, an examination of the process used by the CCFD will be instructive. Obviously, not all of the public agencies used such a detailed planning process in attempting to identify potential impacts. Yet, the process used by the CCFD is instructive in several respects. First, it will demonstrate why the methodology employed over time results in increasing the reliability of both the projected potential impacts, as well as the associated fiscal costs. Second, it clearly demonstrates that the initial fiscal projections are scrutinized and refined over time as new and more detailed information about the transportation of HLW becomes available. Finally, the CCFD effort allows us to see just how seriously agency personnel in the study treat the exercise and how iterative a process it becomes as it expands in scope and additional agency resources and personnel become involved.

1.3 The Model and Questionnaire

The development of a questionnaire that can be used in obtaining fiscal impact projections in the future has been developed (Appendices H and I). The questionnaire consists of items concerning future needs in personnel, capital equipment, training, as well as the entire range of needs identified by fire departments, police departments and emergency management agencies. Once a box has been checked, the drop down populates the need area. For example, if an additional station is needed and the box checked, the drop down populates the station with personnel and equipment based on past experience and solicits from the respondent any additional needs or to identify specific

items that might not be needed by the entity. In this way, the per unit costs can be standardized across jurisdictions and any idiosyncratic needs identified. Only the questionnaire for fire agencies is presented in Appendices H and I, and the other will be provided upon request.

In addition to the questionnaire development, with technical support from Jeremy Aguero of Applied Analysis, an Excel model has been developed that captures all of the per unit cost for each item estimated by a public service agency. Using this model, agencies may alter their projections in a very simple fashion by using the questionnaire and the information being entered into the model. Finally, the model may also be used by agencies for their own budgeting process as they attempt to estimate the cost of such items as substations or other capital equipment or operating expenses.

2.0 THE CLARK COUNTY FIRE DEPARTMENT'S IMPACT ASSESSMENT

The Clark County Fire Department was established November 23, 1953, with its first fire station opening January 1, 1954 (CCFD, 2002b). Prior to its fire station opening, the CCFD worked out of the Las Vegas Fire Department station with only a day shift. In 2002, the CCFD covered an area of over 7900 square miles, and protects a population estimated at that time of over 636,462 (CCFD, 2002b). At any given weekend there are over 500,000 visitors to Las Vegas, and over 36 million visitors annually who fall under the protection of the CCFD. The CCFD's size has grown very quickly to now include 22 fire stations in the urban valley, two stations in Laughlin, and one in Jean. In addition, the CCFD oversees 13 volunteer fire stations located throughout the County (CCFD, 2002;Geldbach-Hall, 2005). The CCFD was composed of 647 full-time employees in 2002 that had grown to 715 authorized positions by the end of 2004 (CCFD, 2002b). Over 350 volunteers served as volunteers outside the urban area. The CCFD along with the Las Vegas Fire and Rescue Department are the only civilian departments housing full time hazardous materials teams in Southern Nevada.

The growth in population the Las Vegas Valley has resulted in an increasing rise in the number of responses by the CCFD. Prior to 2004, the increase in response rates by the CCFD averaged about 6% per year for five years. However in 2004, this response rate

grew to 7%, and the long-term estimates for increases in responses to average about 9.3%, per year, for the next 20 years (Geldbach-Hall, 2005; CCFD, 2004). As Geldbach-Hall notes, the potential for transportation accidents involving the transport of HLW requires the CCFD to prepare for the opening of the repository. The mission statement of the CCFD requires it "to provide optimum protection and prevention for our residents and visitors, with the highest level of valor, integrity, commitment, teamwork, and community involvement" (CCFD, 2002a). Furthermore the CCFD vision statement requires it take a proactive stance in ensuring fire protection, emergency medical and other services (*ibid.*).

In late 2004 the CCFD, under the leadership of Chief Earl Green, established a task force to reevaluate the 2001 CCFD impact projections associated with the Yucca Mountain Repository utilizing the latest information available. Deputy Chief William Kolar (who had supervised the 2001 CCFD projections) was designated as the task force leader. The task force was composed of nine CCFD personnel; including Richard Brenner, the CCFD Hazardous Materials Coordinator and a major contributor to the 2001 CCFD impact projections (Appendix D). The task force also had a representative from METRO housed in Emergency Management, Homeland Security Bureau. Finally, the CCFD task force worked closely with an advisor from Urban Environmental Research LLC to ensure that the best available information on the DOE's transportation plans was available. The task force membership ensured representation of varied fields of expertise and experience from communications and fire suppression to hazardous materials. The task force met frequently over the course of four months.

As Geldbach-Hall notes, "It was the intent of this task force to plan for and estimate the fiscal impact of the Yucca Mountain project to the CCFD to avoid unfunded mandates and over taxing CCFD's current operations and fiscal budget" (2005:19). In order to avoid these potential fiscal impacts, the task force began with a SWOT analysis of the project, developed an updated list of safety concerns and a list of infrastructure needs that addressed these concerns. These infrastructure needs were identified, categorized and cost estimates were applied. The cost estimates were based on current operating budgets, experience of other departments, by researching other agencies with comparable facilities, and historical accounts. The formation of the task force and their

work on the projections raised some concern among project personnel as to how the final product would compare to the earlier 2001 estimates. The 2001 estimates were completed using a smaller less diverse group from the CCFD, and the lack of information in 2001 might have resulted in widely divergent fiscal cost projections. However, as will be seen, the two cost estimates are very close to each other when two of the newly identified infrastructure needs are eliminated.

Throughout the planning process, additional personnel in the CCFD were identified and their input solicited. The first meeting of the task force was December 14, 2004, and the last one in April 6 of 2005. During this time, Brenner reviewed the nature of the waste being shipped and what other agencies in other cities and countries were doing to manage high-level nuclear waste transportation through their communities (Geldbach-Hall, 2005). The task force members were designated areas of responsibility based on their expertise at a December 21, 2004 meeting. On January 20, 2005 the task force reviewed a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, and scheduled a group tour of the Yucca Mountain Repository project. The task force held meetings until the final infrastructure list was approved. As will be seen, the task force organized their infrastructure needs into four main categories including specialty stations, a regional training center, helicopters, and a communication network.

Working with the members of the task force, it soon became clear that everyone understood one of the key factors critical to their analysis. The key was the identification of impacts and their expenses that the CCFD would not incur if there were no repository and shipping campaign. Hence, the effort by CCFD was to identify additional costs that were directly attributable to the project and transportation of the HLW through Clark County. The Department would not incur these costs if the Yucca Mountain Repository and the shipping campaign did not exist. Unlike the 2001 analysis, the 2005 analysis had a previous estimate of the impacts it could review and build on. The task force, its diverse membership representing several elements of the CCFD and the amount of time devoted by the CCFD to the task increase our confidence in their impact projections.

Finally, several assumptions were made by the task force to allow them to direct their efforts at estimating the impacts from the transportation of HLW to Yucca Mountain. First, consistent with the 2001 CCFD analysis, it was assumed that a release of

HLW would have major impact on the operations of the CCFD and that they were not prepared to respond to that level of threat. Second, rather than address the mostly rail and mostly truck scenarios separately, it was assumed that any release would be treated the same for the department and surrounding communities (Geldbach-Hall, 2005:18). Hence, the planning and preparedness necessary would not vary by scenario, but by the nature of a radiological release or the MRFA. Finally, the shipping campaign was assumed to begin sometime in 2010, which now seems increasingly optimistic.

Because this is the first effort to project both the current needs and costs, as well as those through the life cycle of a 24-year shipping campaign, several new demands for information associated with cost estimates are necessary. First, the useful life of equipment and capital facilities must be known so that the 24-year projections can build in their replacement costs. Second, the cost of equipment must be separated from the maintenance and operations expense to avoid projecting additional acquisition costs into the projections prior to the end of their useful life. Because this is the first time an effort has been made to make these 24-year projections, not all of the public safety agencies were always able to refine their projections and separate out these different types of costs. Hence, when information is lacking to permit this, CCFD estimates of useful life of capital equipment has been utilized for some of the other departments. Several other assumptions were necessary and are discussed in the next section of the report.

3.0 THE FISCAL COST PROJECTIONS

There are two types of projections that are provided in this section of the report. The first projection entails cost estimates for the fiscal impacts on the public safety agencies directly attributable to the shipping of HLW to the Repository beginning in 2010. These current projections, are put into 2010 dollars, and are based on the public safety agencies' efforts to identify the equipment, capital infrastructure, training and other upgrades to their capacity necessary for them to be prepared for an MRFA involving HLW. These projections follow the format used in the 2001 fiscal impact reports. The second type of projection is for the fiscal cost of these agency requirements for the entire 24-year period of the transportation campaign. It is essential that in the 24-

year projections the useful life of equipment, vehicles, and capital infrastructure be accounted for so that the projections do not underestimate or overestimate the impacts. For example, vehicles, and equipment will not be useable for the entire 24-year period. Hence, these fiscal cost projections must factor in the useable life of such equipment, the inflationary rise in cost, and build their repurchase into the estimates. Using Microsoft Excel, models were developed, with the assistance of Jeremy Aguero of Applied Analysis, of both useful life and inflationary costs were constructed for all of the items affected by these factors. Appendix F provides the useful life schedule from the base year at specific intervals (year 5, 10, 15, 20 and 24). (The schedule exists for each year but in the interests of space conservation only these 5 points are provided). Appendix F provides the cost inflation percentages projected for the same five points in time.

The current fiscal impact projections are provided in FY 2010 dollars. However the model permits us to estimate these costs beginning at any point in time including the projected beginning of the shipping campaign 2010 (see Appendix E for the model assumptions and estimated per unit cost of each item). The 2001 fiscal cost estimates were based on 2007 dollars. The current projections or the base case fiscal projections for Clark County and local jurisdictions are provided in Tables 2 to 6.

3.1 Fire Department Projections

Table 2 provides the base case estimates for the Clark County Fire Department. The CCFD projected cost for the impacts identified totals $244,246,123. In 2001 the CCFD estimated a cost of $195,896,055 from the repository and the shipping of HLW. On the surface it appears that the CCFD estimate has grown by 24.6% from 2001 to 2005. However, the CCFD identified the need for a Regional Training Center (RTC) at Apex or Jean in their assessment that was not identified in 2001. If the current cost of the land for the RTC ($78+ million) is removed the estimate for 2005, it results in a total estimated impact of $165,838,123 or roughly $30 million less than the 2001 estimate. Therefore, the projected fiscal impact of preparing for the MRFA is lower in 2005 except for the additional land necessary for the RTC. Yet, given the additional attention to estimating these impacts in 2005 through the Task Force that was organized, as well as the additional information available now concerning the MRFA and transportation, the

current projections need to include fewer possible exigencies than was the case in 2001. In short, the estimates are expected too narrow, although not necessarily decline. In this case, CCFD's estimates did decline but the identification of the needed RTC results in an increase in the total fiscal impact.

Table 2 Projected Fiscal Costs on the Clark County Fire Department (2010 Base Case)

CAPITAL COSTS	**Base**	**Total**
Capital Construction Costs	$160,782,050	
Apparatus and Related Equipment Acquisition Costs	$27,609,484	
Support Equipment Capital Costs	$283,421	
Air Support Capital Equipment Costs	$964,431	
Support Vehicle Capital Costs	$3,409,751	
Communication Capital Equipment Costs	$1,254,919	
TOTAL CAPITAL COSTS		**$194,304,056**
OPERATIONS & MAINTENANCE COSTS		
Routine Operations & Maintenance	$2,369,864	
Personnel Costs	$33,914,406	
Personnel Training Costs	$9,928,907	
Communications System Costs	$47,091	
Administrative & Planning Costs		
Miscellaneous Operations & Maintenance	$3,681,799	
TOTAL FIRE OPERATIONS & MAINTENANCE		**$49,942,067**
TOTAL FIRE FISCAL IMPACT		**$244,246,123**

Table 3 provides the current projection for the City of Las Vegas Fire and Rescue Department (LVFR). The LVFR current fiscal impact projection totals $51, 561,333. The 2001 estimate totaled $45,158,058. The 2005 total represents an increase of $6,403,275 or about an increase of 14.1%. The LVFR Department's estimates were constructed by several individuals working under the direction of Deputy Chief Gracia and included Battalion Chief Jay Acebo from the Fire Training Center and Hazardous Materials, as well as the Emergency Manager Tim McAndrew. The delegation of responsibility to these individuals took place after an initial meeting with Chief Washington and the other departmental chiefs were held in which the nature of the project was discussed. Once again, the department was far more involved and used more resources in the unit in developing their impact assessment than in 2001. The increase in the fiscal cost estimate

is largely attributable to the identification of the training and equipment demands emanating from of additional stations in the downtown area near the Union and Pacific railroad because of the rail scenario and the additional population in the LV downtown. In addition, the LVFR believes that the location of another station in the northwest portion of the City near the I-215 near the convergence of the north I-215 and the south I-215 near the HLW truck routes will require additional equipment and training of personnel.

Table 3 Projected Fiscal Costs on the City of Las Vegas Fire and Rescue Department (2010 Base Case)

CAPITAL COSTS	**Base**	**Total**
Capital Construction Costs	$25,600,000	
Apparatus and Related Equipment Acquisition Costs	$7,817,000	
Support Equipment Capital Costs	$734,985	
Air Support Capital Equipment Costs	$214,500	
Support Vehicle Capital Costs		
Communication Capital Equipment Costs	$3,000,000	
TOTAL CAPITAL COSTS		**$37,366,485**
OPERATIONS & MAINTENANCE COSTS		
Routine Operations & Maintenance	$68,530	
Personnel Costs	$10,221,575	
Personnel Training Costs	$3,777,173	
Communications System Costs	$15,000	
Miscellaneous Operations & Maintenance	$112,571	
TOTAL FIRE OPERATIONS & MAINTENANCE		**$14,194,849**
TOTAL FIRE & RESCUE FISCAL IMPACT		**$51,561,334**

Table 4 provides the current base case fiscal cost estimates for the North Las Vegas Fire Department (NLVF). As can be seen from the table the current estimate of the impacts is $29,920,000. The amount represents an increase of $7,498,598 or an increase of 33.4% over the 2001 fiscal impact projection. Ten million dollars of the increase is directly attributable to the need for a training center for fire fighters as the City continues to grow. Currently, the radiological training of firefighters for radiological incidents is inadequate for the community which has the Northern outer loop intersecting it.

Table 4 Projected Fiscal Costs on the North Las Vegas Fire Department (2010 Base Case)

CAPITAL COSTS	**Base**	**Total**
Capital Construction Costs	$19,000,000	
Apparatus and Related Equipment Acquisition Costs		
Support Equipment Capital Costs	$3,940,000	
Air Support Capital Equipment Costs		
Support Vehicle Capital Costs		
Communication Capital Equipment Costs		
TOTAL CAPITAL COSTS		**$22,940,000**
OPERATIONS & MAINTENANCE COSTS		
Routine Operations & Maintenance	$172,000	
Personnel Costs	$5,700,000	
Personnel Training Costs	$1,108,082	
Communications System Costs		
Miscellaneous Operations & Maintenance		
TOTAL FIRE OPERATIONS & MAINTENANCE		**$6,980,000**
TOTAL FIRE FISCAL IMPACT		**$29,920,000**

Table 5 provides the fiscal impact projections for the Henderson Fire Department. Once again the Henderson Fire Department envisions the impacts from the shipping of HLW as minimal. The current projection amounts to $159,764 as opposed to the 2001 projections of $285,933. The difference between the two estimates is a reduction of fiscal cost of $126,169 or 44% less than in 2001 for the fire departments' estimate in part a result of reallocating some fire costs to emergency management.

Table 5 Projected Fiscal Costs on the Henderson Fire Department (2010 Base Case)

CAPITAL COSTS	**Base**	**Total**
Capital Construction Costs		
Apparatus and Related Equipment Acquisition Costs		
Support Equipment Capital Costs		
Air Support Capital Equipment Costs		
Support Vehicle Capital Costs		
Communication Capital Equipment Costs		
TOTAL CAPITAL COSTS		
OPERATIONS & MAINTENANCE COSTS		
Routine Operations & Maintenance		
Personnel Costs		
Personnel Training Costs	$159,764	
Communications System Costs		
Miscellaneous Operations & Maintenance		
TOTAL FIRE OPERATIONS & MAINTENANCE		**$159,764**
TOTAL FIRE FISCAL IMPACT		**$159,764**

Table 6 provides the fiscal cost impact projections for Mesquite's fire department. The fiscal impact projection is $5,151,749 for the fire department. The 2001 Mesquite Fire department projections was $4,141,451, and the 2005 estimate is $1,000,298 greater than in 2001. This represents an increase of 24.1% over the 2001 estimate as a result of identification of new needs and the continuing rapid growth in the size of the fire department and the resulting increased training needs. In fact, in all of the estimates for the fire departments there is considerable movement within the categories based on growth of force and other factors. However, there are also reductions taking place between 2001 and 2005. For example, Mesquite has arranged a cooperative agreement with the City of Las Vegas to use their 911 Reverse Notification System in the event of an evacuation and as a result has removed the equipment from the Mesquite Fire 2005 estimate.

Table 6 Projected Fiscal Costs on the Mesquite Fire Department (2010 Base Case)

CAPITAL COSTS	**Base**	**Total**
Capital Construction Costs		
Apparatus and Related Equipment Acquisition Costs		
Support Equipment Capital Costs	$1,400,000	
Air Support Capital Equipment Costs		
Support Vehicle Capital Costs		
Communication Capital Equipment Costs		
TOTAL CAPITAL COSTS		**$1,400,000**
OPERATIONS & MAINTENANCE COSTS		
Routine Operations & Maintenance	$1,400,000	
Personnel Costs	$2,291,749	
Personnel Training Costs	$60,000	
Communications System Costs		
Administrative & Planning Costs		
Miscellaneous Operations & Maintenance		
TOTAL FIRE OPERATIONS & MAINTENANCE		**$3,751,749**
TOTAL FIRE FISCAL IMPACT		**$5,151,749**

Table 7 provides a summary of the various entities fire departments' current fiscal projections for the impacts. As can be seen from the table the current base case dollar estimates totals $331,038,970. In 2001, the fire departments (less the Moapa Band of Pauites and Boulder City) estimated projections totaled $267,351,634. The 2005 estimate is $63,787,336 more than it was in 2001 or an increase of almost 27%. The increase is largely a function of the land cost for the Regional Training Center ($78 million) in the CCFD impact estimates. In short, the fiscal projections in the fire departments using far more personnel in estimating impacts and with more current data concerning routes and the possible MRFA is converging. This convergence of the estimates is exactly what should be anticipated in an iterative process like the one employed.

Table 7 Summary Current Fire Impact Projections (2010 Base Case)

Fire Entity	Total Fire Fiscal Impact
Clark County Fire Department	$244,246,123
City of Las Vegas Fire & Rescue Department	$51,561,334
North Las Vegas Fire Department	$29,920,000
Henderson Fire Department	$159,764
Mesquite Fire Department	$5,151,749
TOTAL FIRE FISCAL IMPACT	**$331,038,970**

Table 8 provides a summary of the 24-year fiscal cost projections based on the original fire departments' estimates and it includes inflationary factors and useful life span of equipment and other capital expenditures (see Appendices G and F). The table contains the first effort at projecting out the costs from the 24-year shipping campaign on any public safety agencies. As can be seen from the table, for just these fire departments, a total of $3,053,423,989 is the projected fiscal impact on these fire departments. This $3+ billion represents projected costs that none of the departments would incur if not for the repository siting and the accompanying shipping campaign of HLW. The CCFD total of just over $2 billion represents 67% of the total 24-year projected cost for fire department impacts.

Table 8 24-Year Projected Fiscal Fire Departments

Agency	Projected (24-year)	Subtotal
Clark County Fire Department Total Capital Costs	$335,007,656	
Clark County Fire Department Total Operations & Maintenance	$1,723,605,625	
SUBTOTAL CLARK COUNTRY FIRE DEPT		**$2,058,613,281**
City of Las Vegas Total Capital Costs	$75,302,636	
City of Las Vegas Total Fire- Operations & Maintenance	$451,637,492	
SUBTOTAL CITY OF LAS VEGAS FIRE & RESCUE		**$526,940,128**
NLV Total Capital Costs	$37,750,509	
NLV Total Fires Operations & Maintenance	$272,796,577	
SUBTOTAL NORTH LAS VEGAS FIRE		**$310,547,086**
Henderson Total Capital Costs		
Henderson Total Fire-Operations & Maintenance	$6,243,993	
SUBTOTAL HENDERSON FIRE		**$6,243,993**
Mesquite Total Capital Costs	$6,662,617	
Mesquite Total Fire -Operations & Maintenance	$144,416,884	
SUBTOTAL MESQUITE FIRE		**$151,079,501**
TOTAL PROJECTED FIRE DEPT COSTS		**$3,053,423,989**

3.2 Police Department Projections

As noted in the 2001 Public Safety Report, the Las Vegas Metropolitan Police Department (METRO) is the result of a merger between the Las Vegas Police Department and the Clark County Sheriff's Department in 1973. The 2001 fiscal cost projections for METRO relied heavily on the work of Lieutenant Marty Lehtinen. In 2005, METRO decided to expand the team responsible for developing their impact projections. The estimates that were provided is largely the work of a team in the Office of Quality Assurance in METRO supervised by Lieutenant Kirk Primas. However, the four individuals in Quality Assurance drew upon the expertise of at least eight other METRO personnel representing personnel, payroll, emergency management, budget, fleet management, supply management and the Rapid Assessment Team. Similar to what took place in the CCFD, the number of individuals and the fields of expertise represented were expanded dramatically from 2001. METRO's analyst Nancy Beaty and Detective Bill Green were particularly helpful.

Table 9 provides the base case estimates of fiscal impacts to METRO. The projected impacts in 2010 dollars total $31,610,989. The 2001 projection was $67,686,369. The reduction of $36+ million in projected impacts is largely the result of different working assumptions and the removal of additional substations. In addition, the issue of escorting shipments will need clarification for METRO to be more specific about some of its equipment and personnel needs. For example, the question of which agency METRO, the Nevada Highway Patrol or another police agency will have the responsibility of escorting truck shipments will have a major effect on some of the projections. Also in need of clarification, is whether the DOE uses the primarily rail or truck shipment scenario as mode of shipments will heavily affect the escorting vehicles required.

Table 9 Las Vegas Metropolitan Police Department

CAPITAL COSTS	**Base**	**Total**
Support Vehicles	$585,839	
Haz Mat Radiological	$1808468	
Air Support	$7419354	
Other Equipment	$9366726	
TOTAL CAPITAL COSTS		**$19,180,387**
OPERATIONS & MAINTENANCE COSTS		
Personnel Costs	$4801926	
Personnel Training Costs	$5025459	
Maintenance and Supply Costs	$2602259	
Haz Mat Emergency Administration	$958	
TOTAL OPERATIONS & MAINTENANCE COSTS		**$12,430,602**
TOTAL POLICE IMPACT		**$31,610,989**

The North Las Vegas Police Department's base case estimate is presented in Table 10. As can be seen from the table projected fiscal impacts total $711,022. This is the same amount estimated in the 2001 report. The majority of the impacts are projected in requiring additional training of personnel and for a variety of additional radiation detection equipment.

Table 10 North Las Vegas Police (2010 Base Case)

CAPITAL COSTS	Base	Total
Support Vehicles		
Haz Mat Radiological		
Air Support		
Other Equipment	$495,022	
TOTAL CAPITAL COSTS		**$495,022**
OPERATIONS & MAINTENANCE COSTS		
Personnel Costs		
Personnel Training Costs	$216,000	
Maintenance and Supply Costs		
Haz Mat Emergency Administration		
TOTAL OPERATIONS & MAINTENANCE COSTS		**$216,000**
TOTAL POLICE IMPACT		**$711,022**

The City of Henderson's Police fiscal impacts are displayed in Table 11. The 2005 fiscal cost projection to the Henderson Police Department is $495,870. The 2001 cost projection totaled $952,427. The Henderson Police Department 2005 estimate is $456,557 less than the 2001 projected fiscal impact or a reduction of almost 48%. Hence, both the Henderson fire and police service projections have been reduced from their original 2001 fiscal estimates. The majority of the Henderson police impacts are for personnel training and radiation detection and survey meter equipment.

Table 11 Henderson Police (2010 Base Case)

CAPITAL COSTS	Base	Total
Support Vehicles		
Haz Mat Radiological		
Air Support		
Other Equipment	$77,677	
TOTAL CAPITAL COSTS		**$77,677**
OPERATIONS & MAINTENANCE COSTS		
Personnel Costs		
Personnel Training Costs	$418,193	
Maintenance and Supply Costs		
Haz Mat Emergency Administration		
TOTAL OPERATIONS & MAINTENANCE COSTS		**$418,193**
TOTAL POLICE IMPACT		**$495,870**

The Mesquite Police Department fiscal impact estimates are provided in Table 12. The 2005 projected impacts to this agency are $3,628,302. In 2001 the estimate for the Mesquite Police Department totaled $2,828,960. The 2005 fiscal impact projection is an increase of $799,342 or 28%. The majority of the impacts are viewed as requiring additional training and new police officers resulting from the heavy transportation impact potential from truck shipments through the community.

Table 12 Mesquite Police Department (2010 Base Case)

CAPITAL COSTS	**Base**	**Total**
Support Vehicles		
Haz Mat Radiological		
Air Support		
Other Equipment	$917,760	
TOTAL CAPITAL COSTS		**$917,760**
OPERATIONS & MAINTENANCE COSTS		
Personnel Costs		
Personnel Training Costs	$2,710,542	
Maintenance and Supply Costs		
Haz Mat Emergency Administration		
TOTAL OPERATIONS & MAINTENANCE COSTS		**$2,710,542**
TOTAL POLICE IMPACT		**$3,628,302**

The projected 24-year entire shipping campaign costs to police agencies participating in the study are provided in Table 13. As can be seen from the table, the total police service projected fiscal impacts total $516,592,217. Of this total, $394,323,975 is projected just for METRO or about 76% of the total projected fiscal impacts on police departments during the 24-year shipping campaign.

Table 13 Police Departments 24-Year Projected Fiscal Costs

Agency	Projected (24-year)	Subtotal
Clark County METRO Capital Costs	$61,720,070	
Clark County Operations & Maintenance	$332,603,905	
SUBTOTAL CLARK COUNTY		**$394,323,975**
City of Las Vegas Capital Costs		
City of Las Vegas Operations & Maintenance		
SUBTOTAL CITY OF LAS VEGAS		
City of North Las Vegas Capital Costs	$2,081,175	
City of North Las Vegas Operations & Maintenance	$7,425,452	
SUBTOTAL CITY OF NORTH LAS VEGAS		**$9,506,627**
Henderson Capital Costs	$535,354	
Henderson Operations & Maintenance	$14,425,354	
SUBTOTAL HENDERSON		**$14,960,709**
Mesquite Capital Costs	$3,858,457	
Mesquite Operations & Maintenance	$93,942,449	
SUBTOTAL MESQUITE		**$97,800,906**
TOTAL PROJECTED POLICE DEPT COSTS		**$516,592,217**

3.3 Emergency Management

Table 3.13 provides the first estimates of the cost of constructing and operating a Regional Emergency Operations Center (REOC). The REOC has been placed within the Clark County Office of Emergency Management rather than a local jurisdiction reflecting the regional nature and function of such a center. It is important to note that all of the emergency management personnel from the agencies interviewed indicated the need for such a facility in the event of an MFRA, or a long lasting radiological event. The initial cost projections for such a REOC varied considerably among the jurisdictions, and the City of Las Vegas estimates are used here because of their comprehensive nature. As can be seen from Table 14, the estimate of the REOC is $15,472,500. The 2001 projections did not include such a facility.

Table 14 Clark County Office of Emergency Management

	2010 Base Case
Regional EOC CONSTRUCTION (15,000 sq. ft facility, Communication infrastructure, Land acquisition)	$13,250,000
Support Equipment Capital Costs	
Routine Operations & Maintenance	$250,000
Personnel Costs	$1,472,500
Administrative & Planning Costs	
Miscellaneous Operations & Maintenance	$500,000
TOTAL	**$15,472,500**

Table 15 contains all of the base case estimates for the emergency management function in the local jurisdictions. Briefly, the base case estimate for all jurisdictions is $2,287,864. In 2001, the estimate was for $730,597. The 2005 estimate represents an increase of $1,557,267 or approximately an increase of 300%. Part of this increase is a result of the City of Las Vegas having an experienced emergency manager in place in 2005 which was not the case during the 2001 study. In addition, much of the estimated impact is directly attributable to the need for new radiation, response plans, as well as public information programs.

Table 15 Local Jurisdictions Emergency Management Costs (2010 Base Case)

City of Las Vegas	Base	Total
OPERATIONS & MAINTENANCE COSTS		
Routine Operations and Maintenance		
Personnel		
Personnel Training	$116,000	
Emergency Response Administration	$1,762,000	
TOTAL OPERATIONS & MAINTENANCE COSTS		**$1,878,000**
City of North Las Vegas		
OPERATIONS & MAINTENANCE		
Routine Operations and Maintenance	$200,000	
Personnel	$110,000	
Personnel Training		
Emergency Response Administration	$15,000	
TOTAL OPERATIONS & MAINTENANCE COSTS		**$325,000**
Henderson		
OPERATIONS & MAINTENANCE		
Routine Operations and Maintenance		
Personnel		
Personnel Training		
Emergency Response Administration	$74,864	
TOTAL OPERATIONS & MAINTENANCE COSTS		**$74,864**
Mesquite		
OPERATIONS & MAINTENANCE		
Routine Operations and Maintenance		
Personnel		
Personnel Training		
Emergency Response Administration	$10,000	
TOTAL OPERATIONS & MAINTENANCE		**$10,000**
COMBINED TOTAL		**$2,287,864**

Table 16 provides the 24-year projected fiscal impacts for the County and the local jurisdictions. As can be seen from the table, the total 24 projected cost for emergency management is $376,455,465. These projected costs are the direct result from the siting of a repository and the anticipated shipping campaign.

Table 16 Clark County Community Emergency Management 24-Year Projected Fiscal Costs

	Projected (24-year)	Total
Clark County	$100,111,088	
Las Vegas	$36,355,329	
North Las Vegas	$12,186,992	
Henderson	$664,309	
Mesquite	$47,590	
COMBINED TOTAL		**$376,455,465**

3.4 Summary of Projected Costs

Table 17 provides a summary of the base case costs by community and function. The table permits one to see the total base case estimated fiscal cost projections for Clark County and each community, as well as the total estimated cost for each public safety function. For example, base case fire department projected costs are $331,038,969 of the total projected public safety cost estimated at $385,245,516. This total for fire represents almost 86 percent of the total projected base case cost.

Table 17 Total Projected Costs for Clark County and Local Jurisdictions (Base Case 2010)

	Fire	Police *	Emergency Mgmt	Total Costs
Clark County	$244,246,123	$31,610,989*	$15,472,500	$291,329,612
Las Vegas	$51,561,333	*	$1,878,000	$53,439,333
North Las Vegas	$29,920,000	$711,022	$325,000	$30,956,022
Henderson	$159,764	$495,870	$74,864	$730,498
Mesquite	$5,151,749	$3,628,302	$10,000	$8,790,051
COMBINED TOTALS	**$331,038,969**	**$36,446,183**	**$17,760,364**	**$385,245,516**

***** Police refers to the Las Vegas Metropolitan Police Department (METRO) which is a jointly funded police force by Clark County and the City of Las Vegas. The projections for METRO have all been placed under Clark County projections

Table 18 provides the total projected 24-year cost for Clark County and the local communities by public safety function. Of the total projected $3,719,031,513, CCFD projections equal over $2 billion of this total. Fire Departments' total projected fiscal cost estimates total over $3 billion of the estimated $3.7 billion. Indeed, Clark County, including METRO account for over $2.5 billion of the more than $3.7 billion projected during the 24-year shipping campaign. These projected costs to public safety agencies resulting from the siting of the repository and 24-year anticipated shipping campaign represent the potential for significant unfunded mandates and the County and communities will need to continue to plan for their impact.

Table 18 Total Projected Costs For Clark County and Local Jurisdictions 24-Year Projections

	Fire	Police *	Emergency Mgmt	Total Costs
Clark County *	$2,058,613,280	$394,323,975*	$100,111,088	$2,553,048,343
Las Vegas	$526,590,127	*	$36,355,329	$562,945,456
North Las Vegas	$310,547,085	$9,506,627	$12,186,992	$332,240,705
Henderson	$6,243,993	$14,960,709	$664,309	$21,869,011
Mesquite	$151,079,502	$97,800,906	$47,590	$248,927,998
COMBINED TOTAL	**$3,053,073,987**	**$122,268,242**	**$149,365,308**	**$3,719,031,513**

***** Police refers to the Las Vegas Metropolitan Police Department (METRO) which is a jointly funded police force by Clark County and the City of Las Vegas. The projections for METRO have all been placed under Clark County projections

4.0 CONCLUSIONS AND NEXT STEPS.

As noted in Section 3.0, the projected public safety impacts resulting from the DOE's proposal to ship high-level nuclear waste to Yucca Mountain will result in a significant fiscal burden to Clark County and local jurisdictions. While the Nuclear Waste Policy Act requires the DOE to assist affected units of local government with public safety related impact costs it is not likely that DOE will provide adequate compensation for these impacts. While DOE continues to move forward with transportation planning for the proposed Caliente rail corridor, the likelihood that they will be successful in implementing rail routes in the early stages of the proposed shipment campaign is questionable. Therefore, Clark County must continue to be prepared for highway shipments during the initial years of the proposed Yucca Mountain high-level nuclear waste shipment program. Furthermore, even if the DOE is eventually

successful in implementing rail shipments along the Caliente rail corridor, Clark County will continue to be affected and be responsible for public safety impacts.

Thus, it is critical that Clark County continue to update their impact assessment costs on an annual basis and to continue to provide these costs to the DOE and other federal, state, and local decision makers. In addition, it is vital that Clark County continues to monitor the full range of potential public safety impacts to document Yucca Mountain related impacts for federal, state, and local decision makers.

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APPENDIX A The Case Study Method for Projecting Governmental Fiscal Costs

The case study method "employs intensive site-specific investigations to determine categories of excess or slack in public service delivery capacity." Excess capacity exists when there is capacity beyond that needed to accommodate existing service need or demand, and deficient capacity exists when the current capacity is below what is needed or near the limits of what can be provided. These deficient or excess service capacities are subtracted from or added to the projected estimates of operating and capital demands. Hence, excess existing capacity can actually mitigate the effects of a project on a community, as it may already possess the capacity to meet these future or projected service needs and demands. Alternatively, should a community be at peak capacity or deficient capacity already exists, then additional demand may have far greater impact than an average cost technique would project. In fiscal impact analysis used by planners, when a new development results in, for example a new fire station, or rescue station, the new development may be charged for the entire cost. In a similar vein if a new project or mandate results in the necessity of new equipment, training, or various capital outlays, the relevant acts (NWPA, NWPAA) specify that the agent of these new costs be charged for the entire amount of the new capacity.

Several assumptions underlie the use of the case study cost projection method. Briefly, the first assumption is that communities differ in the degree to which they exhibit excess or deficient capacity. The second assumption is that marginal changes in providing various municipal and county services are a reaction to service excesses or deficiencies. A third assumption is that local standards (not national ones) in large part represent the criteria by which local excess and deficient service levels will be measured. Finally and most importantly, local department heads and personnel are the individuals that are best suited and most knowledgeable about the service capacity of their agencies, and about the future service needs associated with new projects or mandates. It is this case study method that has been used extensively on state agency personnel in Nevada to project the costs of the high-level nuclear waste repository at the state governmental level.

The case study methodology for estimating fiscal impacts was adopted for projecting fiscal costs to the governmental agencies in incorporated cities in Clark County. This methodology entails the following steps:

1. Convene a meeting of city and tribal representatives (and their selected emergency service representative from their city) to the Clark County Nuclear Waste Division's (NWD) Advisory Committee to explain the purpose and methodology of the study and enlist their cooperation.
2. Contact and interview the city representative to the County Nuclear Waste Division's Advisory Committee to identify the likely city agencies that will be impacted.
3. Contact and interview these key governmental and public officials (emergency management, police, fire, budget, planning).
4. Categorize current local governmental services by function and the administrative agencies responsible for each (particular attention to each community's governmental organization is required at this stage);

5. Determine current levels of service provision, as well as existing service excess or deficiency for various public services;
6. Project future service needs and demands using existing mandates and agency responsibilities, as well as through the interviews conducted;
7. Interview local agency personnel to determine how their departments will respond to the scenarios characterizing the nature of the future repository and transportation of waste, and how these scenarios will either result in the necessity of expanded capacities (or not) and the projected response of the agency;
8. Estimate fiscal costs that will be incurred by each affected agency and the affected units of local government as a result of their projected response to the scenarios (needed training, equipment, operational expenditures, and capital outlays over the life cycle of the project).

These steps in the methodology that was employed can be collapsed, and be viewed diagrammatically as the basic approach to projecting fiscal impacts from the proposed repository for city agencies. Figure 1.1 (in text) outlines the approach to projecting the fiscal impacts and it can be seen clearly that the process is iterative and non-linear. These steps are not linear as there are several contacts and interviews with agency personnel as the study progresses. Frequently, after an interview with agency personnel it is necessary to again interview that individual for clarification or draw on their expertise to adequately project the impacts of the project. Often interviews with agency staff members results in being referred to another member of an agency's personnel. In addition, in order to increase the comparability of the projections, interview schedules contained a basic set of questions that were developed and used for each informant interviewed.

APPENDIX B Summary of 2001 Scenarios

Scenario	Description
1	No accident of any kind has occurred. However, anti-nuclear environmental groups and property owners along the route (who claim that their property values will decrease) have generated considerable publicity. Residential property values have declined an average of 3.5% within one mile of the transportation corridor, while commercial properties have declined an average of 3.2% and industrial properties have declined an average of 1.25% within one mile of the transportation corridor.
2	Shipments of nuclear waste to the Yucca Mountain repository site have progressed for several years without incident. Three days after New Year's Day 2010, the driver of a truck transporting nuclear waste loses control of the vehicle and runs into the median of Interstate 15. The cask containing the nuclear waste breaks away from the trailer and skids 50 yards along the median of I-15 in North Las Vegas. The cask remains intact and no radiation is released, but the national media covers the event heavily. Residential property values decline an average of 7.96%o within one mile and an average of 4% between 1 and 3 miles of the transportation corridor; commercial property values decline an average of 7.4% within one mile and an average of 3% between I and 3 miles of the transportation corridor. Finally, industrial property values decline an average of 5.3% within one mile and an average of 2% between 1 and 3 miles of the transportation corridor.
3*	An accident involving a truck carrying spent nuclear fuel and a gasoline tanker on I-15 near the Las Vegas Strip. The accident triggers a chain reaction collision. Twenty-seven civilians, four sheriff's deputies, and seven firefighters are hospitalized after exposure to radiation at the site of accident. Another 1,000 or more persons are exposed to radiation from the fire's radioactive plume. Experts indicate that 5 to 200 latent cancer fatalities may result from the accident. The affected highway and several access ramps are closed for four days. The two drivers of the spent fuel hauler and the gasoline tanker, and one driver-escort, died from head injuries and burns. Six months later the cleanup effort is still under way, and thousands of lawsuits have been filed. Preliminary reports estimate cleanup costs and economic losses in excess of $1 billion. Residential property values decline an average of 33.8% within one mile and an average of 23.6% between I and 3 miles of the transportation corridor; commercial property values decline and average of 31.9% within one mile and an average of 20% between 1 and 3 miles of the transportation corridor. Finally, industrial property values decline an average of 25.5% within one mile and an average of 16.7% between 1 and 3 miles of the transportation corridor.

*Source: State of Nevada, Nuclear Waste Project Office.

APPENDIX C 2005 Scenarios

Scenario 1—ALL COMMUNITIES MOSTLY TRUCK BASE CASE ROUTING

For 24-years beginning around July 2010, the U.S. Department of Energy (U.S. DOE) plans to ship high-level nuclear waste through Clark County to a repository that will be built at Yucca Mountain, Nevada. In the mostly truck scenario, the U.S. DOE plans to ship:

Shipments Planned Under Mostly Truck Scenario		
Total number of legal-weight truck shipments over a 24-year shipping period:		**52,786**
Number of shipments per year	**2,199**	
Number of shipments per week		**42**
Number of shipments per day		**6**

*There are **two principal** shipment routes for these truck shipments (See attached map1 for these route depictions).*

For 45,919 of the legal-weight shipments:

- **I-15 entering Clark County from Arizona via I-15 at Mesquite**
- **I-15 continuing on and traversing the Moapa Reservation to the**
- **Northern Beltway continuing on to**
- **U.S. 95 north traversing the Las Vegas Pauite Reservation to the repository**

For 6,867 of the legal-weight shipments:

- **I-15 entering Clark County from California at Primm to the**
- **Southern Beltway continuing on to**
- **U.S. 95 traversing the Las Vegas Pauite Reservation to the repository**

Under the mostly truck shipping scenario there are between 100-300 train shipments involving the shipment of 300 Multi Purpose Canisters containing Spent Nuclear Fuel from INEEL in Idaho. These train shipments will entail heavy haul truck (HHT) shipments after arriving at an intermodal transfer facility in the Apex area north of Las Vegas where they will be loaded on these heavy haul trucks (one cask per HHT). These HHTs are 200+ feet long vehicles, and will be very slow moving at around 25-35 mph.

The shipment plan for the 100-300 rail shipments and 300 HHTs is:

- **Union Pacific Main Line entering Clark County from Utah and Lincoln County *(see attached map2 for these depictions)***
- **Traversing the Moapa Indian Reservation to intermodal transfer facility in the Apex area north of Las Vegas and transferred to HHTs**
- **HHT enter I-15 at U.S. 93 or at S.R. 604 *(see attached map 2)* to the**
- **Northern Beltway and on to**
- **U.S. 95 traversing the Las Vegas Pauite Reservation—**

Scenario 2—All COMMUNITIES MOSTLY RAIL BASE CASE ROUTING

For a period of 24-years the U.S. Department of Energy (U.S. DOE) plans to ship high-level nuclear waste through Clark County to a repository that will be built at Yucca Mountain, Nevada. In the mostly rail scenario, the U.S. DOE plans to ship:

Shipments Planned Under the Mostly Rail Scenario
Total number of rail shipments through *Clark County* over a 24-year shipping period: 194-594
Total number of rail cask shipments that *would not* travel through Clark County 8,896-9,052

The principal shipment route for these rail shipments (see attached map2)

For the roughly 594 rail cask shipments:

- **Enter Clark County from CA. on the Union Pacific Main Line and**
- **Traverse Downtown Las Vegas and**
- **Travel to the Caliente Rail Spur Traversing the Moapa Indian Reservation**

Under the mostly rail shipment scenario there are approximately 1,079 legal-weight truck shipments into Clark County.

The shipment plan for these 1,079 legal-weight truck shipment is:

- **I-15 entering Clark County from Arizona via I-15 at Mesquite**
- **I-15 continuing on and traversing the Moapa Reservation to the**
- **Northern Beltway continuing on to**
- **U.S. 95 traversing the Las Vegas Pauite Reservation to the repository**

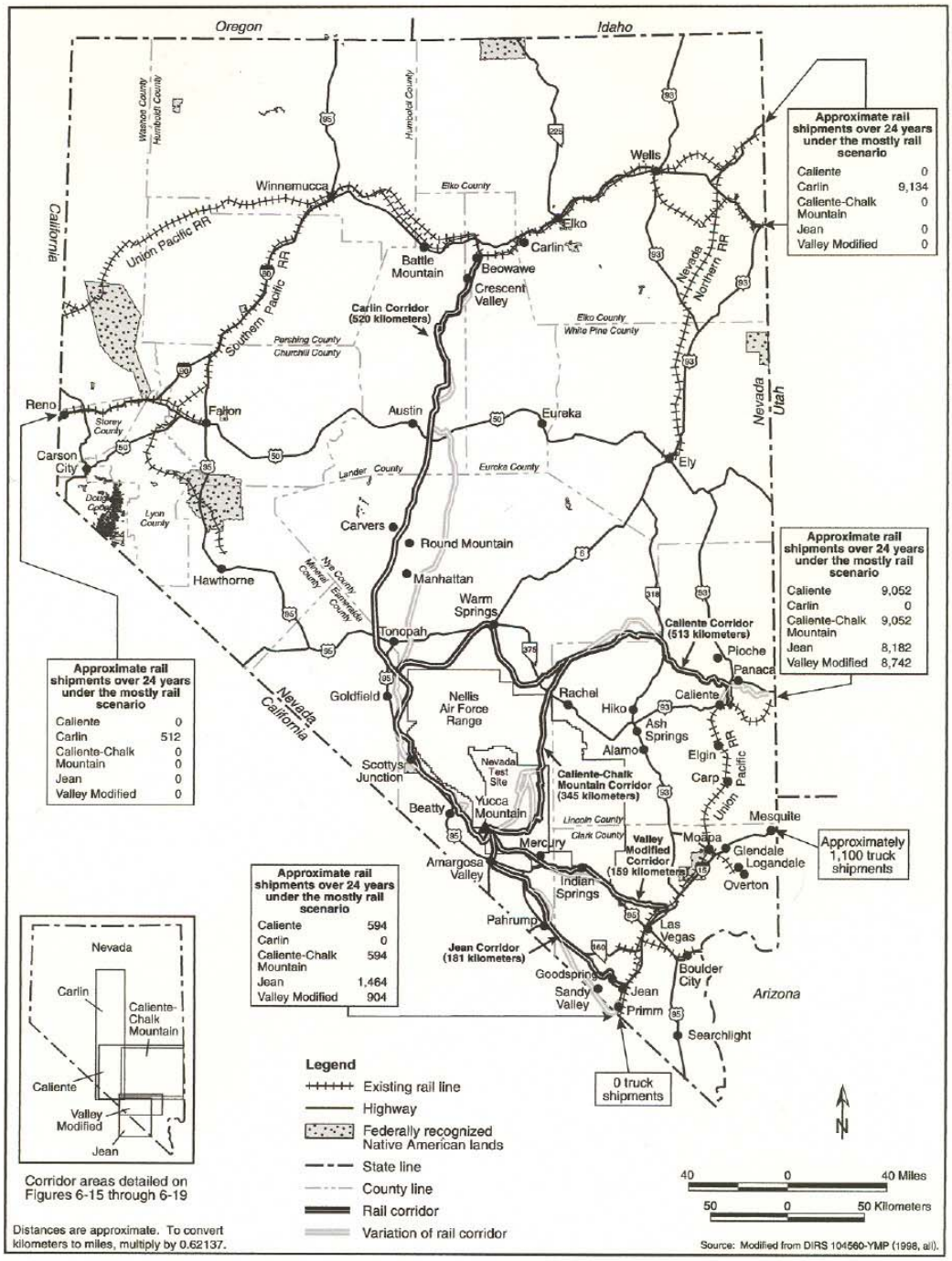

Figure 6-14. Potential Nevada rail routes to Yucca Mountain and estimated number of shipments for each route.

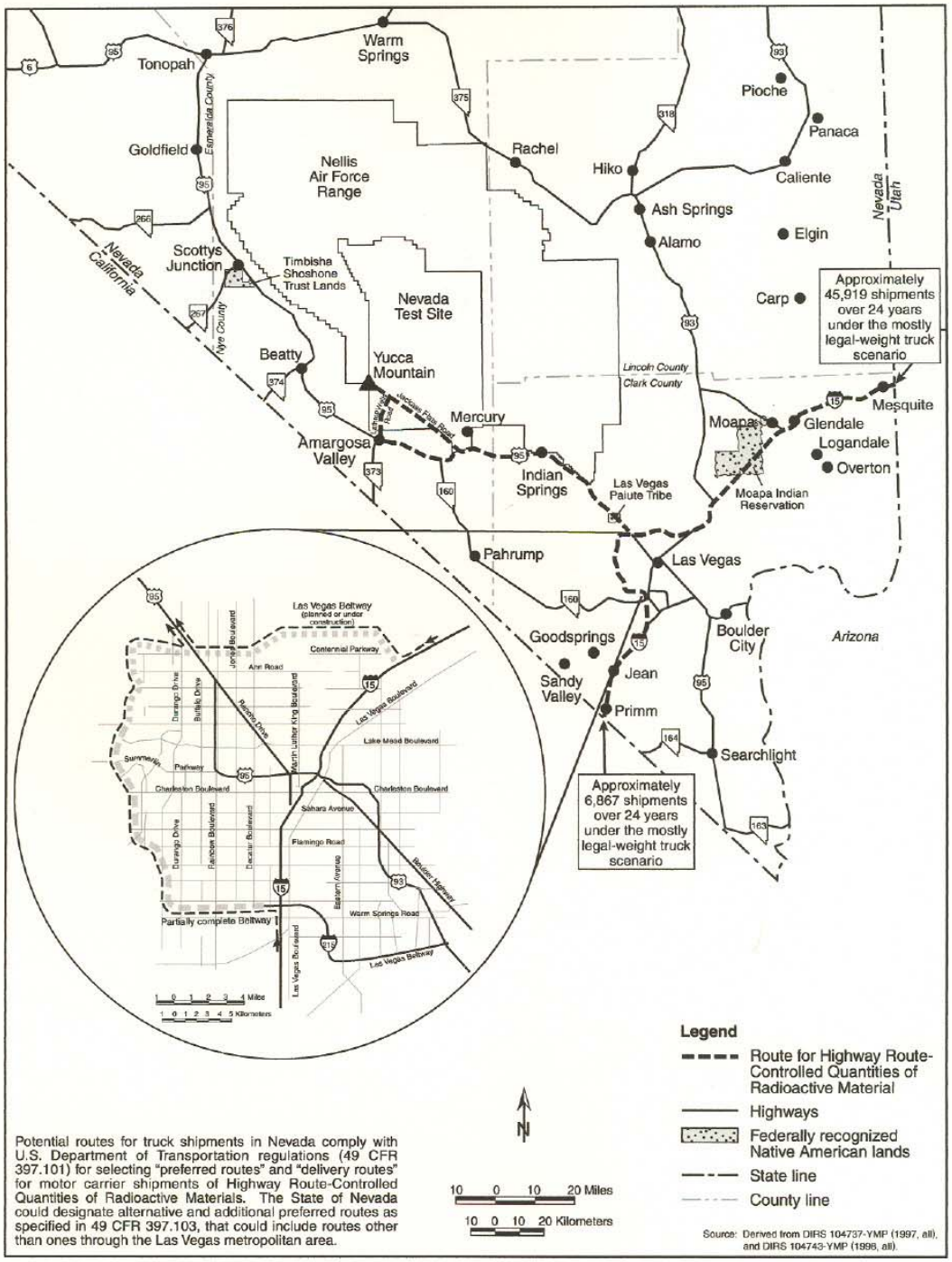

Figure 6-13. Potential Nevada routes for legal-weight trucks and estimated number of shipments.

Accident Estimates			
	DOE Estimate	State Estimate Using DOE Data	State of NV Estimate
Mostly Truck	66 Truck	5-6 in NV	75 total
	0-1 Rail		
Mostly Rail	8 Rail	1 in NV	190 total and
	1 Truck		10-20 in NV
Most likely MRFA for both rail and truck is a long duration high-temperature fire that would engulf a cask (similar to the Baltimore Tunnel Fire).			
MRFA is most likely in a rural area.			

APPENDIX D Task Force Members

Clark County Fire Department Members: Task Force Members

1. Earl Green, Fire Chief
2. William Kolar, Deputy Fire Chief, Task Force Leader
3. William Kourim, Deputy Fire Chief
4. Gary Sepich, Deputy Fire Chief
5. Fernandez Leary, Assistant Chief
6. Danny Ganier, Battalion Chief
7. Gina Geldbach-Hall, Battalion Chief
8. Richard Brenner, CCFD Haz-Mat Coordinator
9. Jim Wilson, SNACC Communications Systems Manager

Representing the Las Vegas Metropolitan Police Force

10. Mike McCrimon, Lieutenant Emergency Management, Homeland Security Division
11. Kirk Primas, Lieutenant Office of Quality Assurance
12. Nancy Beaty, Analyst Office of Quality Assurance
13. Detective Bill Green, Office of Quality Assurance
14. Alan Grimm, Office of Quality Assurance
15. Under Sheriff Douglas Gillespie, Office of the Sheriff
16. Lieutenant Lombardo, METRO
17. Jeff Vialard, Detective METRO Rapid Assessment Team
18. Bob Chinn, Captain, Personnel Bureau
19. Lisa Hale, Payroll Manager
20. Marty Lehntinen, Lieutenant formerly with Emergency Management Section (author of the 2001 METRO Report)
21. Janelle Kraft, Budget Director
22. Sam Pisacreta, Fleet Manager
23. Jim Schneidewent, Supply Manager
24. Daniel Zehnder, Sergeant

Clark County Office of Emergency Management

25. Jim O'Brien, Manager
26. Carolyn Levering, Plans and Operations Coordinator

City of Las Vegas

27. David Washington, Chief Las Vegas Fire and Rescue
28. Rick Gracia, Deputy Chief, Las Vegas Fire and Rescue
29. Jay Acebo, Battalion Chief, Las Vegas Fire and Rescue
30. Tim McAndrew, Emergency Manager
31. Maggie Plaster, Office of Administrative Services
32. Jeff Morgan, Deputy Chief Las Vegas Fire and Rescue
33. Greg Gammon, Deputy Chief Las Vegas Fire and Rescue
34. Ken Riddle, Deputy Chief Las Vegas Fire and Rescue

City of North Las Vegas

35. Terri Davis, Assistant Chief (at the time of the study Acting Fire Chief)
36. Patricia Loft, Emergency Management Coordinator
37. Michael Kincaid, Lieutenant North Las Vegas Police
38. Al Gillespie, Fire Chief
39. Jimmy Johnson, Assistant Fire Chief

Mesquite

40. Derek Hughes, Fire Chief
41. David Petersen, Deputy Fire Chief
42. Joe Szalay, Deputy Police Chief
43. Heidi Karin-Albrecht, former Manager, Emergency Management

City of Henderson

44. Mike Cyphers, Emergency Management Coordinator
45. Lieutenant James Green, Henderson Police

Representing the Nuclear Waste Division, Clark County Department of Comprehensive Planning:

Alvin Mushkatel, Ph.D., Urban Environmental Research, LLC. Project Advisor

APPENDIX E Model Assumption and Cost Worksheet

PUBLIC SAFETY MODULE -						
ENTITY REQUIREMENT SUMMARY MODEL (MULTIPLIER AND COST ASSUMPTIONS)						
	Units	Clark County	Las Vegas	North Las Vegas	Henderson	Mesquite
Station Construction Costs						
Estimated Station Cost	$ Per Square Foot	$230	$0	$0	$230	$230
Average Size of a Station	Square Feet	$25,000	$0	$0	$25,000	$25,000
Station Land Requirement	Acres	$5	$0	$0	$5	$5
Station Land Cost	$ Per Square Foot	$12	$0	$0	$12	$12
Station Furniture, Fixtures and Equipment Costs	$ Per Square Foot	$73	$0	$0	$73	$73
Station Site Development Costs	$ Per Station	$500,000	$0	$0	$500,000	$500,000
Fuel Tank Farm	$ Per Station	$200,000	$0	$0	$200,000	$200,000
Station Construction Cost (Unspecified)	$ Per Station	$0	$4,100,000	$4,500,000	$0	$0
Annual Facility Operations & Maintenance Costs	$ Per Station			$40,000		
Station Equipment Costs						
CBRNE Engine w/ Equipment	$ Per Unit	$681,760	$0	$0	$681,760	$681,760
Truck w/ Equipment	$ Per Unit	$885,331	$0	$0	$885,331	$885,331
Rescue w/ Equipment	$ Per Unit	$218,876	$0	$0	$218,876	$218,876
Haz-Mat Unit w/ Equipment	$ Per Unit	$700,000	$0	$0	$700,000	$700,000
Heavy Rescue Engine w/ Equip	$ Per Unit	$650,000	$0	$0	$650,000	$650,000
Mobile Air Unit w/ Equipment	$ Per Unit	$330,000	$0	$0	$330,000	$330,000
Disaster Mitigation Apparatus 1	$ Per Unit	$1,389,982	$0	$0	$1,389,982	$1,389,982
Disaster Mitigation Apparatus 2	$ Per Unit	$1,197,000	$0	$0	$1,197,000	$1,197,000
Suppression Personnel Costs						
Battalion Chief	Annual Cost	$172,678	$0	$0	$172,678	$172,678
Captain	Annual Cost	$160,957	$0	$0	$160,957	$160,957
Engineer	Annual Cost	$141,620	$0	$0	$141,620	$141,620
Firefighter	Annual Cost	$122,883	$0	$0	$122,883	$122,883
Communications Costs						
Tower	$ Per Unit	$10,000	$0	$0	$10,000	$10,000
Microwave System	$ Per Unit	$175,000	$0	$0	$175,000	$175,000
Radios for all personnel	$ Per Unit	$3,740	$0	$0	$3,740	$3,740
Batteries for radios	$ Per Unit	$125	$0	$0	$125	$125
Battery Analyzer	$ Per Unit	$1,500	$0	$0	$1,500	$1,500
Haz-Mat In-Suit Communicator	$ Per Unit	$1,500	$0	$0	$1,500	$1,500

Bank Chargers	$ Per Unit	$700	$0	$0	$700	$700
SNACC Operating System Cost	$ Per Unit	$185	$0	$0	$185	$185
Capitol Buy-In (One time fee)	$ Per Unit	$1,500	$0	$0	$1,500	$1,500
Annual Telephone Cost	$ Per Station	$3,697	$0	$0	$3,697	$3,697
Air Support Costs						
SCBA Backpacks	$ Per Unit	$2,273	$0	$0	$2,273	$2,273
SCBA Bottles- 30 minute	$ Per Unit	$823	$0	$0	$823	$823
Haz-Mat SCBA Backpacks	$ Per Unit	$1,820	$0	$0	$1,820	$1,820
SCBA Bottles- 1 hour	$ Per Unit	$1,148	$0	$0	$1,148	$1,148
SCBA Mask	$ Per Unit	$503	$0	$0	$503	$503
RIT Bags	$ Per Unit	$1,290	$0	$0	$1,290	$1,290
Additional yearly operating cost	$ Per Unit	$280	$0	$0	$280	$280
Supervisor for SCBA Division	Annual Cost	$90,502	$0	$0	$90,502	$90,502
Support Vehicle Costs						
Suburban	$ Per Unit	$33,852	$0	$0	$33,852	$33,852
Sedan	$ Per Unit	$25,000	$0	$0	$25,000	$25,000
Van	$ Per Unit	$30,000	$0	$0	$30,000	$30,000
Pick-up Flat Bed Truck	$ Per Unit	$50,600	$0	$0	$50,600	$50,600
Mechanics Truck	$ Per Unit	$29,348	$0	$0	$29,348	$29,348
Unit upgrades (Code 3, Equip, etc)	$ Per Unit	$28,500	$0	$0	$28,500	$28,500
Administrative Support Costs						
Deputy Chief	Annual Cost	$182,057	$0	$0	$182,057	$182,057
Assistant Chief	Annual Cost	$169,154	$0	$0	$169,154	$169,154
Materials Controller	Annual Cost	$90,502	$0	$0	$90,502	$90,502
Mechanic	Annual Cost	$99,972	$0	$0	$99,972	$99,972
Public Information Officers	Annual Cost	$140,718	$0	$0	$140,718	$140,718
Alarm Office Dispatcher	Annual Cost	$90,200	$0	$0	$90,200	$90,200
Escort/Inspection Personnel	Annual Cost	$124,961	$0	$0	$124,961	$124,961
Radiation Safety Officer	Annual Cost	$154,730	$0	$0	$154,730	$154,730
Miscellaneous Station-related Costs						
Warehouse Inventory	$ Per Station	$900,000	$0	$0	$900,000	$900,000
Turnout Ensemble	$ Per Unit	$1,508	$0	$0	$1,508	$1,508
Cleaning/Repairing of Turnouts	$ Per Unit	$120	$0	$0	$120	$120
Tank Farm Operating Expenses	$ Per Unit	$4,000	$0	$0	$4,000	$4,000
Annual Training Cost	$ Per Person	$2,408	$0	$0	$2,408	$2,408
Annual Services and Supplies	$ Per Station	$252,413	$0	$0	$252,413	$252,413
Apparatus Maintenance Cost	$ Per Unit	$18,042	$0	$0	$18,042	$18,042
Fuel Cost	$ Per Station	$46,667	$0	$0	$46,667	$46,667
Recruit Academy Cost	$ Per Person	$15,326	$0	$0	$15,326	$15,326

Regional Training Center Costs						
Construction Cost	$ Per RTC	$25,000,000	$0	$0	$25,000,000	$25,000,000
Estimates Acreage Requirement	Acres Per RTC	$150	$0	$0	$150	$150
Estimated Acre Land Cost	$ Per Acre	$12	$0	$0	$12	$12
Site Development/ Upgrades	$ Per RTC	$500,000	$0	$0	$500,000	$500,000
Fuel Tank Farm (Initial Cost)	$ Per RTC	$200,000	$0	$0	$200,000	$200,000
Total Regional Training Center Employment	# Per RTC	$777	$0	$0	$777	$777
Training Center Construction Cost (Unspecified)	$ Per RTC	$0	$9,200,000	$10,000,000	$0	$0
Regional Training Center Personnel Costs						
Deputy Chief	Annual Cost	$182,057	$0	$0	$0	$0
Assistant Chief	Annual Cost	$169,154	$0	$0	$0	$0
Administrative Battalion Chief	Annual Cost	$172,678	$0	$0	$0	$0
Training Officers	Annual Cost	$132,719	$0	$0	$0	$0
Training Instructors	Annual Cost	$119,239	$0	$0	$0	$0
Administrative Specialist	Annual Cost	$90,502	$0	$0	$0	$0
Materials Controller	Annual Cost	$90,502	$0	$0	$0	$0
Mechanic	Annual Cost	$99,972	$0	$0	$0	$0
Dispatchers	Annual Cost	$90,200	$0	$0	$0	$0
Warehouse Employees (Cadets)	Annual Cost	$24,000	$0	$0	$0	$0
Regional Training Center Communications Costs						
Tower	$ Per Unit	$10,000	$0	$0	$0	$0
Microwave System	$ Per Unit	$175,000	$0	$0	$0	$0
Radios for all personnel	$ Per Unit	$3,740	$0	$0	$0	$0
Batteries for radios	$ Per Unit	$125	$0	$0	$0	$0
Battery Analyzer	$ Per Unit	$1,500	$0	$0	$0	$0
Bank Chargers	$ Per Unit	$700	$0	$0	$0	$0
SNACC Operating System Cost	$ Per Unit	$185	$0	$0	$0	$0
Capitol Buy-In (One time fee)	$ Per Unit	$1,500	$0	$0	$0	$0
Emergency Operations Center	$ Per Center	$5,000,000	$0	$0	$0	$0
Annual Telephone Cost	$ Per Center	$5,000	$0	$0	$0	$0
Regional Training Center Training Costs						
Station Tech Training - Number of Techs	# of Techs	$186	$0	$0	$0	$0
Station Tech Training - Number of Hours Required	# of Hours	$300	$0	$0	$0	$0

Station Tech Training - Cost Per Hour	$ Per Hour	$58	$0	$0	$0	$0
Initial Training - Personnel Count	# of Personnel	$630	$0	$0	$0	$0
Initial Training - Number of Training Hours Required	# of Hours	$8	$0	$0	$0	$0
Initial Training - Cost Per Hour	$ Per Hour	$58	$0	$0	$0	$0
On-going Training - Personnel Count	# of Personnel	$630	$0	$0	$0	$0
On-going Training - Number of Training Hours Required	# of Hours	$4	$0	$0	$0	$0
On-going Training - Cost Per Hour	$ Per Hour	$58	$0	$0	$0	$0
Recruit Academy Cost	$ Per Person	$15,326	$0	$0	$0	$0
Regional Training Center Equipment Costs						
CBRNE Engine Equipment	$ Per Unit	$165,601	$0	$0	$0	$0
Heavy Rescue Equipment	$ Per Unit	$200,000	$0	$0	$0	$0
Truck Equipment	$ Per Unit	$110,331	$0	$0	$0	$0
Haz-Mat Equipment	$ Per Unit	$200,000	$0	$0	$0	$0
Rescue Equipment	$ Per Unit	$68,876	$0	$0	$0	$0
Regional Training Center Air Support Costs						
SCBA Backpacks	$ Per Unit	$2,273	$0	$0	$0	$0
SCBA Bottles- 30 minute	$ Per Unit	$823	$0	$0	$0	$0
SCBA Air Mask	$ Per Unit	$503	$0	$0	$0	$0
Haz-Mat SCBA Backpacks	$ Per Unit	$1,820	$0	$0	$0	$0
SCBA Bottles- 1 hour	$ Per Unit	$1,148	$0	$0	$0	$0
RIT Bags	$ Per Unit	$1,290	$0	$0	$0	$0
Yearly operating cost for system	$ Per Unit	$280	$0	$0	$0	$0
Regional Training Center Support Vehicle Costs						
Flat-Bed Truck, Heavy Duty	$ Per Unit	$50,600	$0	$0	$0	$0
Mechanic Truck	$ Per Unit	$29,348	$0	$0	$0	$0
Bus	$ Per Unit	$100,000	$0	$0	$0	$0
Van	$ Per Unit	$30,000	$0	$0	$0	$0
Suburban	$ Per Unit	$33,852	$0	$0	$0	$0
Sedan	$ Per Unit	$25,000	$0	$0	$0	$0
Unit upgrades (Code 3, Equip, etc)	$ Per Unit	$28,500	$0	$0	$0	$0
Regional Training Center Miscellaneous Costs						
Annual Telephone/Satellite Cost	$ Per RTC	$12,500	$0	$0	$0	$0
Fuel Tank Farm	$ Per RTC	$4,000	$0	$0	$0	$0
Fuel	$ Per RTC	$35,000	$0	$0	$0	$0

(LPG/Gas/Diesel)						
General Operating Expenses	$ Per RTC Employee	$2,408	$0	$0	$0	$0
Fuel Cost (vehicles only)	$ Per RTC	$27,000	$0	$0	$0	$0
APCO Communications Network Cost	$ Per Network	$25,000,000	$25,000,000	$25,000,000	$25,000,000	$25,000,000
Helicopter Equipment Costs						
Bell Augusta AB 139	$ Per Helicopter	$8,966,750	$8,966,750	$8,966,750	$8,966,750	$8,966,750
Equipment Cost	$ Per Helicopter	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Helicopter Personnel Costs						
Pilot(s)	$ Per Helicopter	$2	$2	$2	$2	$2
Cost Per Pilot	Annual Cost	$160,957	$160,957	$160,957	$160,957	$160,957
Mechanics	$ Per Helicopter	$1	$1	$1	$1	$1
Cost Per Mechanic	Annual Cost	$99,972	$99,972	$99,972	$99,972	$99,972
Crew Chief	$ Per Helicopter	$1	$1	$1	$1	$1
Cost Per Crew Chief	Annual Cost	$160,957	$160,957	$160,957	$160,957	$160,957
Annual Helicopter Training Costs						
Crew Training	# of Hours Per Crew	$200	$200	$200	$200	$200
Crew Training Costs	$ Per Hour	$58	$58	$58	$58	$58
FAA/ Aircraft Recertification	n.a.	$0	$0	$0	$0	$0
Annual Helicopter Operations Costs						
Operating Cost Per Hour	$ Per Hour of Operation	$1,000	$1,000	$1,000	$1,000	$1,000
Average Hours of Operation	# of Hours	$200	$200	$200	$200	$200
Insurance Cost	$ Per Helicopter	$400,000	$400,000	$400,000	$400,000	$400,000
Annual Storage Costs						
Hanger Cost	$ Per Helicopter	$25,500	$25,500	$25,500	$25,500	$25,500
Warehouse Cost	$ Per Helicopter	$350	$350	$350	$350	$350
Emergency Management						
Facility Construction and Development Costs						
	Square Feet	$15,000	$15,000	$0	$0	$0
	$ Per Square Foot	$350	$350	$0	$0	$0
	$ Per Facility	$3,000,000	$3,000,000	$0	$0	$0
	$ Per Facility	$5,000,000	$5,000,000	$0	$0	$0
Facility Staffing and Operational Expenses						
	$ Per Person	$125,000	$125,000	$0	$0	$0
	$ Per Person	$110,000	$110,000	$0	$0	$0
	$ Per Person	$60,000	$60,000	$0	$0	$0
	$ Per Facility	$500,000	$500,000	$0	$0	$0
	$ Per Person	$0	$0	$55,000	$0	$0
	$ Per Facility	$250,000	$250,000	$200,000	$0	$0

Training Costs						
	Annual Program Cost	$0	$5,000	$0	$0	$0
	Annual Program Cost	$0	$10,000	$0	$0	$0
	Annual Program Cost	$0	$5,000	$0	$0	$0
	Annual Program Cost	$0	$96,000	$0	$0	$0
Public Awareness Program Costs						
	Annual Program Cost	$0	$500,000	$0	$0	$0
	Annual Program Cost	$0	$750,000	$0	$0	$0
	Annual Program Cost	$0	$500,000	$0	$0	$0
Ad Hoc Requirements - Fire						
Personnel						
	Annual Cost	$182,057	$182,057	$182,057	$182,057	$182,057
	Annual Cost	$169,154	$169,154	$169,154	$169,154	$169,154
	Annual Cost	$172,678	$95,938	$158,207	$172,678	$172,678
	Annual Cost	$160,957	$84,868	$147,468	$160,957	$160,957
	Annual Cost	$0	$222,952	$0	$0	$0
	Annual Cost	$141,620	$75,112	$129,752	$141,620	$141,620
	Annual Cost	$0	$194,988	$0	$0	$0
	Annual Cost	$122,883	$68,609	$112,585	$122,883	$88,771
	Annual Cost	$0	$150,195	$0	$0	$0
	Annual Cost	$0	$78,363	$71,796	$0	$0
	Annual Cost	$0	$205,846	$0	$0	$0
	Annual Cost	$132,719	$93,719	$121,597	$132,719	$95,876
	Annual Cost	$119,239	$119,239	$119,239	$119,239	$119,239
	Annual Cost	$90,502	$90,502	$90,502	$90,502	$65,379
	Annual Cost	$140,719	$140,719	$140,719	$140,719	$140,719
	Annual Cost	$99,972	$99,972	$99,972	$99,972	$99,972
	Annual Cost	$90,502	$90,502	$90,502	$90,502	$90,502
	Annual Cost	$90,200	$90,200	$90,200	$90,200	$90,200
	Annual Cost	$90,200	$90,200	$90,200	$90,200	$90,200
	Annual Cost	$124,961	$124,961	$124,961	$124,961	$124,961
	Annual Cost	$154,730	$154,730	$154,730	$154,730	$154,730
	Annual Cost	$24,000	$24,000	$24,000	$24,000	$24,000
Training						
	Per Person	$0	$19,429	$0	$0	$0
	Per Person	$0	$18,839	$0	$0	$0
	Per Person	$0	$17,195	$0	$0	$0
	Per Person	$0	$14,921	$0	$0	$0
	Per Person	$0	$19,849	$0	$0	$0
	Per Person	$0	$6,476	$0	$0	$0
	Per Person	$0	$6,279	$0	$0	$0
	Per Person	$0	$5,732	$0	$0	$0
	Per Person	$0	$4,974	$0	$0	$0
	Per Person	$0	$6,995	$0	$0	$0
	# Per Person	$0	$8	$0	$0	$0
	$ Per Hour	$0	$384	$0	$0	$0
	$ Per Hour	$0	$145	$0	$0	$0
	$ Per Hour	$0	$417	$0	$0	$0

	$ Per Hour	$0	$1,003	$0	$0	$0
	$ Per Hour	$0	$383	$0	$0	$0
	$ Per Hour	$0	$358	$0	$0	$0
	Per Person	$0	$162	$0	$0	$0
	Per Person	$0	$1,200	$0	$0	$0
	Per Person	$0	$169	$0	$0	$0
	Per Person	$0	$1,354	$0	$0	$0
	$ Per Hour	$0	$0	$0	$5,325	$0
	$ Per Hour	$0	$0	$0	$5,326	$0
	$ Per Occurrence	$0	$0	$224,400	$0	$0
	$ Per Occurrence	$0	$0	$756,000	$0	$0
	$ Per Occurrence	$0	$0	$0	$0	$0
	# of Hours	$0	$0	$0	$0	$242
	# of Hours	$0	$0	$127,600	$0	$242
Planning & Administrative						
		$0	$10,000	$15,000	$13,401	$10,000
		$0	$2,000	$0	$0	$0
		$0	$0	$0	$61,463	$0
Communications Equipment						
	$ Per Unit	$3,740	$3,740	$3,740	$3,740	$3,740
	# Per Radio	$2	$2	$2	$2	$2
	$ Per Unit	$125	$125	$125	$125	$125
	Batteries Per Analyzer	$50	$50	$50	$50	$50
	$ Per Unit	$1,500	$1,500	$1,500	$1,500	$1,500
	$ Per Unit	$1,500	$1,500	$1,500	$1,500	$1,500
	Batteries Per Charger	$17	$17	$17	$17	$17
	$ Per Unit	$700	$700	$700	$700	$700
	$ Per Unit	$185	$185	$185	$185	$185
	$ Per Unit	$10,000	$10,000	$10,000	$10,000	$10,000
	$ Per Unit	$175,000	$175,000	$175,000	$175,000	$175,000
	$ Per Unit	$1,500	$1,500	$1,500	$1,500	$1,500
	$ Per Unit	$0	$15,000	$0	$0	$0
	$ Per System	$0	$1,500,000	$0	$0	$0
Equipment/Apparatus						
	$ Per Unit	$1,508	$1,508	$1,508	$1,508	$1,508
	$ Per Unit	$120	$120	$120	$120	$120
	$ Per Unit	$516,159	$350,000	$516,159	$516,159	$516,159
	$ Per Unit	$165,601	$35,000	$165,601	$165,601	$165,601
	$ Per Unit	$450,000	$450,000	$450,000	$450,000	$450,000
	$ Per Unit	$200,000	$200,000	$200,000	$200,000	$200,000
	$ Per Unit	$775,000	$600,000	$775,000	$775,000	$775,000
	$ Per Unit	$110,331	$18,000	$110,331	$110,331	$110,331
	$ Per Unit	$150,000	$171,000	$150,000	$150,000	$150,000
	$ Per Unit	$68,876	$64,000	$68,876	$68,876	$68,876
	$ Per Unit	$500,000	$420,000	$500,000	$500,000	$500,000
	$ Per Unit	$200,000	$200,000	$200,000	$200,000	$200,000
	$ Per Unit	$290,000	$290,000	$290,000	$290,000	$290,000
	$ Per Unit	$40,000	$40,000	$40,000	$40,000	$40,000
	$ Per Unit	$148,224	$148,224	$148,224	$148,224	$148,224
	$ Per Unit	$111,458	$111,458	$111,458	$111,458	$111,458
	$ Per Unit	$844,300	$844,300	$844,300	$844,300	$844,300
	$ Per Unit	$25,000	$25,000	$25,000	$25,000	$25,000
	$ Per Unit	$500,000	$125,000	$500,000	$500,000	$500,000

	$ Per Unit	$0	$32,500	$0	$0	$0
	$ Per Unit	$100,000	$100,000	$100,000	$100,000	$100,000
	$ Per Unit	$39,000	$39,000	$39,000	$39,000	$39,000
	$ Per Unit	$97,000	$97,000	$97,000	$97,000	$97,000
	$ Per Unit	$1,389,982	$1,389,982	$1,389,982	$1,389,982	$1,389,982
	$ Per Unit	$1,197,000	$1,197,000	$1,197,000	$1,197,000	$1,197,000
	$ Per Unit	$0	$1,925	$0	$0	$0
	$ Per Unit	$0	$170	$0	$0	$0
	$ Per Unit	$0	$495	$0	$0	$0
	$ Per Unit	$0	$80	$0	$0	$0
	$ Per Unit	$0	$1	$0	$0	$0
	$ Per Unit	$0	$250,000	$0	$0	$0
	$ Per Unit				$2,680	
	Total	$0	$0	$3,940,000	$0	$1,400,000
	$ Per Year	$0	$0	$92,000	$0	$1,400,000
Vehicles						
	$ Per Unit	$30,000	$30,000	$30,000	$30,000	$30,000
	$ Per Unit	$25,000	$25,000	$25,000	$25,000	$25,000
	$ Per Unit	$33,852	$33,852	$33,852	$33,852	$33,852
	$ Per Unit	$50,600	$50,600	$50,600	$50,600	$50,600
	$ Per Unit	$29,348	$29,348	$29,348	$29,348	$29,348
	$ Per Unit					
	$ Per Unit	$28,500	$28,500	$28,500	$28,500	$28,500
Related Fuel Costs						
	$ Per Vehicle	$5,423	$5,423	$5,423	$5,423	$5,423
	$ Per Vehicle	$8,061	$8,061	$8,061	$8,061	$8,061
	$ Per Vehicle	$7,505	$7,505	$7,505	$7,505	$7,505
	$ Per Vehicle	$7,542	$7,542	$7,542	$7,542	$7,542
	$ Per Vehicle	$4,515	$4,515	$4,515	$4,515	$4,515
	$ Per Vehicle	$2,178	$2,178	$2,178	$2,178	$2,178
	$ Per Vehicle	$2,682	$2,682	$2,682	$2,682	$2,682
	$ Per Vehicle	$3,133	$3,133	$3,133	$3,133	$3,133
	$ Per Vehicle	$4,458	$4,458	$4,458	$4,458	$4,458
	$ Per Vehicle	$1,843	$1,843	$1,843	$1,843	$1,843
	$ Per Vehicle	$175	$175	$175	$175	$175
Related Air Support Costs						
	# Per Engine	$5	$0	$5	$5	$5
	# Per Truck	$5	$0	$5	$5	$5
	# Per Rescue	$2	$0	$2	$2	$2
	# Per Engine	$5	$0	$5	$5	$5
	# Per Haz-Mat	$5	$0	$5	$5	$5
	# Per Backpack	$3	$0	$3	$3	$3
	# Per Haz-Mat	$8	$0	$8	$8	$8
	# Per Haz Backpack	$3	$0	$3	$3	$3
	# Per Backpack	$1	$0	$1	$1	$1
	# Per Apparatus	$1	$0	$1	$1	$1
	# Per RIT Bag	$1	$0	$1	$1	$1
	# Per RIT Bag	$1	$0	$1	$1	$1
	$ Per Unit	$2,273	$0	$2,273	$2,273	$2,273
	$ Per Bottle	$823	$0	$823	$823	$823
	$ Per Unit	$1,820	$0	$1,820	$1,820	$1,820
	$ Per Bottle	$1,148	$1,000	$1,148	$1,148	$1,148
	$ Per Unit	$503	$0	$503	$503	$503
	$ Per Unit	$347	$0	$347	$347	$347
	$ Per Unit	$452	$0	$452	$452	$452

	$ Per Unit	$491	$0	$491	$491	$491
	Total Cost	$0	$3,000	$0	$0	$0
Ad Hoc Requirements - Police						
Personnel						
	$ Per Person	$104,901	$104,901	$0	$0	$0
	$ Per Person	$88,894	$88,894	$0	$0	$0
	$ Per Person	$104,901	$104,901	$0	$0	$0
	$ Per Person	$88,894	$88,894	$0	$0	$0
	$ Per Person	$160,957	$160,957	$0	$0	$0
	$ Per Person	$99,972	$99,972	$0	$0	$0
	$ Per Person	$160,957	$160,957	$0	$0	$0
	$ Per Person	$49,223	$49,223	$0	$0	$0
	$ Per Person	$91,527	$91,527	$0	$0	$0
Training						
	$ Per Person	$15,000	$15,000	$0	$0	$0
	$ Per Person	$0	$0	$0	$0	$78,185
	$ Per Person	$0	$0	$1,200	$1,394	$4,344
	$ Per Unit	$6,108	$6,108	$0	$0	$0
	$ Per Unit	$914	$914	$0	$0	$0
	$ Per Unit	$10,000	$10,000	$0	$0	$0
	$ Per Unit	$41,000	$41,000	$0	$0	$0
	$ Per Unit	$44,800	$44,800	$0	$0	$0
	$ Per Unit	$7,800	$7,800	$0	$0	$0
	$ Per Unit	$750	$750	$0	$0	$0
	# of Hours	$6	$6	$0	$0	$0
	$ Per Hour	$81	$81	$0	$0	$0
	$ Per Hour	$67	$67	$0	$0	$0
	$ Per Hour	$57	$57	$0	$0	$0
	$ Per Hour	$48	$48	$0	$0	$0
	# of Hours	$6	$6	$0	$0	$0
	$ Per Hour	$48	$48	$0	$0	$0
	$ Per Hour	$41	$41	$0	$0	$0
	$ Per Hour	$35	$35	$0	$0	$0
	$ Per Hour	$58	$58	$0	$0	$0
Equipment						
	$ Per Unit	$25,500	$25,500	$0	$0	$0
	$ Per Unit	$47,985	$47,985	$0	$0	$0
	$ Per Unit	$750,000	$750,000	$0	$0	$0
	$ Per Unit	$40,000	$40,000	$0	$0	$0
	$ Per Unit	$50,000	$50,000	$0	$0	$0
	$ Per Unit	$30,000	$30,000	$0	$0	$0
	$ Per Unit	$300,000	$300,000	$0	$0	$0

	$ Per Unit	$30,000	$30,000	$0	$0	$0
	$ Per Unit	$2,200,000	$2,200,000	$0	$0	$0
	$ Per Unit	$1,000,000	$1,000,000	$0	$0	$0
	$ Per Unit	$75,000	$75,000	$0	$0	$0
	$ Per Unit	$54,070	$54,070	$0	$0	$0
	$ Per Unit	$15,000	$15,000	$0	$0	$0
	$ Per Unit	$17,400	$17,400	$0	$0	$0
	$ Per Unit	$49,450	$49,450	$0	$0	$0
	$ Per Unit	$925	$925	$0	$0	$0
	$ Per Unit	$2,678	$2,678	$0	$0	$0
	$ Per Unit	$19,660	$19,660	$0	$0	$0
	$ Per Unit	$75	$75	$0	$0	$0
	$ Per Unit	$40	$40	$0	$0	$0
	$ Per Unit	$0	$0	$0	$2,680	$0
	$ Per Person	$0	$0	$2,750	$0	$38,240
Maintenance & Supply Costs						
	$ Per Unit Per Year	$1,200	$1,200	$0	$0	$0
	$ Per Unit Per Year	$1,350	$1,350	$0	$0	$0
	$ Per Unit Per Year	$2,900	$2,900	$0	$0	$0
	$ Per Unit Per Year	$3,120	$3,120	$0	$0	$0
	$ Per Unit Per Year	$2,880	$2,880	$0	$0	$0
	$ Per Unit Per Year	$900	$900	$0	$0	$0
	$ Per Unit Per Year	$2,900	$2,900	$0	$0	$0
	$ Per Unit Per Year	$3,120	$3,120	$0	$0	$0
	$ Per Unit Per Year	$2,880	$2,880	$0	$0	$0
	$ Per Unit Per Year	$900	$900	$0	$0	$0
	$ Per Unit Per Year	$2,900	$2,900	$0	$0	$0
	$ Unit Per Year	$600	$600	$0	$0	$0
	$ Per Hour Per Year	$1,000	$1,000	$0	$0	$0
	$ Unit Per Year	$400,000	$400,000	$0	$0	$0
	$ Unit Per Year	$25,500	$25,500	$0	$0	$0
	$ Unit Per Year	$350	$350	$0	$0	$0
Administrative and Planning						
	$ Per Hour	$52	$52	$0	$0	$0
	$ Per Hour	$44	$44	$0	$0	$0
	$ Per Hour	$22	$22	$0	$0	$0

APPENDIX F Useful Life

Appendix F contains the useful life schedule. Useful life is the length of time some equipment or other asset is expected to be useable. The table in Appendix F provides the number of years of expected use from each asset (such as a building) and the remaining years of expected use at the intervals provided (5, 10,15,24-years). The table in Appendix F provides the projected useful life for all equipment and other assets identified in the study, as well as allowing us to identify which equipment and assets will need to be replaced (and at what time) during the anticipated 24-year DOE shipping campaign.

	Base Year	Year 5	Year 10	Year 15	Year 20	Year 24
FIRE STATIONS						
Station Construction Cost						
Estimated Station Cost	50	46	41	36	31	27
Estimated Land Cost (5 acre parcel)	100	96	91	86	81	77
Fixtures, Furnishings, & Equip	20	16	11	6	1	18
Site Development/Upgrades	50	46	41	36	31	27
Fuel Tank Farm (initial cost)	50	46	41	36	31	27
Station Construction Cost (unspecified)	50	46	41	36	31	27
Station Construction Subtotal						
Station Operations & Maintenance Costs (not otherwise specified)	-	-	-	-	-	-
Apparatus						
CBRNE Engine w/ Equipment	10	6	1	7	2	9
Truck w/ Equipment	10	6	1	7	2	9
Rescue w/ Equipment	10	6	1	7	2	9
Haz-Mat Unit w/ Equipment	10	6	1	7	2	9
Heavy Rescue Engine w/ Equip	10	6	1	7	2	9
Mobile Air Unit w/ Equipment	10	6	1	7	2	9
Disaster Mitigation Apparatus 1	10	6	1	7	2	9
Disaster Mitigation Apparatus 2	10	6	1	7	2	9

Apparatus Subtotal						
Suppression Personnel						
Battalion Chief	~	~	~	~	~	~
Captain	~	~	~	~	~	~
Engineer	~	~	~	~	~	~
Firefighter	~	~	~	~	~	~
Suppression Personnel Subtotal	~	~	~	~	~	~
Communications						
Tower	25	21	16	11	6	2
Microwave System	25	21	16	11	6	2
Radios for all personnel	10	6	1	7	2	9
Batteries for radios	3	3	2	1	~	~
Battery Analyzer	5	1	2	3	4	~
Haz-Mat In-Suit Communicator	5	1	2	3	4	~
Bank Chargers	5	1	2	3	4	~
SNACC Operating System Cost	~	~	~	~	~	~
Capitol Buy-In (One time fee)	10	6	1	7	2	9
Annual Telephone Cost	~	~	~	~	~	~
Communications Subtotal						
Air Support (SCBA)						
SCBA Backpacks	15	11	6	1	12	8
SCBA Bottles- 30 minute	15	11	6	1	12	8
Haz-Mat SCBA Backpacks	15	11	6	1	12	8
SCBA Bottles- 1 hour	15	11	6	1	12	8
SCBA Mask	15	11	6	1	12	8
RIT Bags	15	11	6	1	12	8
SCBA Annual Operating Costs	~	~	~	~	~	~
Supervisor for SCBA						

Division	~	~	~	~	~	~
Air Support (SCBA) Subtotal	~	~	~	~	~	~
Support Vehicles						
Suburban	7	3	6	1	4	~
Sedan	7	3	6	1	4	~
Van	7	3	6	1	4	~
Pick-up Flat Bed Truck	7	3	6	1	4	~
Mechanics Truck	7	3	6	1	4	~
Unit upgrades (Code 3, Equip, etc)	7	3	6	1	4	~
Support Vehicle Subtotal	~	~	~	~	~	~
Support Personnel						
Deputy Chief	~	~	~	~	~	~
Assistant Chief	~	~	~	~	~	~
Materials Controller	~	~	~	~	~	~
Mechanic	~	~	~	~	~	~
Public Information Officers	~	~	~	~	~	~
Alarm Office Dispatcher	~	~	~	~	~	~
Escort/Inspection Personnel	~	~	~	~	~	~
Radiation Safety Officer	~	~	~	~	~	~
Support Personnel Subtotal	~	~	~	~	~	~
Miscellaneous						
Warehouse Inventory	~	~	~	~	~	~
Turnout Ensemble	7	3	6	1	4	~
Cleaning/Repairing of Turnouts	~	~	~	~	~	~
Tank Farm Operating Expenses	~	~	~	~	~	~
Annual Training Cost	~	~	~	~	~	~
Annual Services and Supplies	~	~	~	~	~	~

Vehicle Maintenance Cost	~	~	~	~	~	~
Fuel Cost	~	~	~	~	~	~
Recruit Academy Cost	30	26	21	16	11	7
Miscellaneous Subtotal	~	~	~	~	~	~
Regional Training Center Construction Cost						
Estimated Facility Construction Cost	50	46	41	36	31	27
Estimated Land Acquisition Cost	100	96	91	86	81	77
Site Development/ Upgrades	50	46	41	36	31	27
Fuel Tank Farm (Initial Cost)	50	46	41	36	31	27
Training Center Construction Cost (Unspecified)	50	46	41	36	31	27
Construction Cost Subtotal	~	~	~	~	~	~
Personnel						
Deputy Chief	~	~	~	~	~	~
Assistant Chief	~	~	~	~	~	~
Administrative Battalion Chief	~	~	~	~	~	~
Training Officers	~	~	~	~	~	~
Training Instructors	~	~	~	~	~	~
Administrative Specialist	~	~	~	~	~	~
Materials Controller	~	~	~	~	~	~
Mechanic	~	~	~	~	~	~
Dispatchers	~	~	~	~	~	~
Warehouse Employees (Cadets)	~	~	~	~	~	~
Personnel Subtotal	~	~	~	~	~	~
Communications						
Tower	25	21	16	11	6	2
Microwave System	25	21	16	11	6	2
Radios for all personnel						

	10	6	1	7	2	9
Batteries for radios	3	3	2	1	-	-
Battery Analyzer	5	1	2	3	4	-
Bank Chargers	5	1	2	3	4	-
SNACC Operating System Cost	5	1	2	3	4	-
Capitol Buy-In (One time fee)	-	-	-	-	-	-
Annual Telephone Cost	-	-	-	-	-	-
Communications Subtotal	-	-	-	-	-	-
Training						
Yearly training for Tech Sta	-	-	-	-	-	-
Initial training for Department	100	96	91	86	81	77
On-going training for Dept	-	-	-	-	-	-
Recruit Academy	30	26	21	16	11	7
Training Subtotal	-	-	-	-	-	-
Equipment/Supplies						
CBRNE Engine Equipment	10	6	1	7	2	9
Heavy Rescue Equipment	10	6	1	7	2	9
Truck Equipment	10	6	1	7	2	9
Haz-Mat Equipment	10	6	1	7	2	9
Rescue Equipment	10	6	1	7	2	9
Equipment/Supplied Subtotal	-	-	-	-	-	-
Air Support (SCBA)						
SCBA Backpacks	15	11	6	1	12	8
SCBA Bottles- 30 minute	15	11	6	1	12	8
SCBA Air Mask	15	11	6	1	12	8
Haz-Mat SCBA Backpacks	15	11	6	1	12	8
SCBA Bottles- 1 hour	15	11	6	1	12	8

RIT Bags	15	11	6	1	12	8
Yearly operating cost for system	-	-	-	-	-	-
Air Support (SCBA) Subtotal	-	-	-	-	-	-
Support Personnel Vehicles						
Flat-Bed Truck, Heavy Duty	7	3	6	1	4	-
Mechanic Truck	7	3	6	1	4	-
Bus	7	3	6	1	4	-
Van	7	3	6	1	4	-
Suburban	7	3	6	1	4	-
Sedan	7	3	6	1	4	-
Unit upgrades (Code 3, Equip, etc)	7	3	6	1	4	-
Support Personnel Vehicles Subtotal	-	-	-	-	-	-
Miscellaneous						
Annual Telephone/Satellite Cost	-	-	-	-	-	-
Fuel Tank Farm	-	-	-	-	-	-
Fuel (LPG/Gas/Diesel)	-	-	-	-	-	-
General Operating Expenses	-	-	-	-	-	-
Fuel Cost (vehicles only)	-	-	-	-	-	-
Miscellaneous Subtotal	-	-	-	-	-	-
Facility Construction and Development Costs						
Facility Construction Costs	50	46	41	36	31	27
Land Acquisition Costs	100	96	91	86	81	77
Information Technology and Communications Infrastructure	20	16	11	6	1	18
Subtotal Facility Construction and Development Costs	-	-	-	-	-	-
Facility Staffing and Operational Expenses						
EOC Managers	-	-	-	-	-	-

Emergency Management Analysts	-	-	-	-	-	-
Clerical/Office Specialists	-	-	-	-	-	-
On-site Security	-	-	-	-	-	-
Personnel (unspecified)	-	-	-	-	-	-
General Operating Expenses	-	-	-	-	-	-
Subtotal Facility Staffing and Operational Expenses	-	-	-	-	-	-
Training Costs						
Senior & Elected Official Workshops	-	-	-	-	-	-
Emergency Management Staff Training	-	-	-	-	-	-
Public Affairs Office Staff Training	-	-	-	-	-	-
Public Works/Field Operations Staff Training	-	-	-	-	-	-
Subtotal Training Costs	-	-	-	-	-	-
Public Awareness Program Costs						
Brochures and other public education materials	-	-	-	-	-	-
Video production	-	-	-	-	-	-
Community awareness courses	-	-	-	-	-	-
Subtotal Public Awareness Program Costs	-	-	-	-	-	-
APCO Communications Network						
Estimated Facility Construction Cost	50	46	41	36	31	27
APCO Communications Network Subtotal	-	-	-	-	-	-
General Apparatus/Equipment						
Turnouts/Safety Equipment	7	3	6	1	4	-
CBRNE Engine	10	6	1	7	2	9
Heavy Rescue Engine	10	6	1	7	2	9
Truck Equipment	10	6	1	7	2	9
Rescue Equipment	10	6	1	7	2	9
Haz-Mat Equipment						

	10	6	1	7	2	9
Mobile Air Unit	10	6	1	7	2	9
Andros Wolverine Robot	10	6	1	7	2	9
Andros F6A Robot	10	6	1	7	2	9
Disaster Medical Facility	10	6	1	7	2	9
Mobile Oxygen Storage Tanks	10	6	1	7	2	9
Tx Mass Casualty Decon Unit	10	6	1	7	2	9
Portable Decon Tents	10	6	1	7	2	9
Semi-Trucks	10	6	1	7	2	9
Flat Bed Trailer	10	6	1	7	2	9
Forklift (10,000 lbs capacity)	10	6	1	7	2	9
Disaster Mitigation Apparatus 1	10	6	1	7	2	9
Disaster Mitigation Apparatus 2	10	6	1	7	2	9
Radiological Survey Meters (Monitors)	10	6	1	7	2	9
Radiological Survey Meters (Annual Calibration)	10	6	1	7	2	9
Personal Victoreen Dosimeters (Monitors)	10	6	1	7	2	9
Personal Victoreen Dosimeters (Annual Calibration)	10	6	1	7	2	9
Personal Victoreen Dosimeters (Revealer Dosimeter Reader Kit)	10	6	1	7	2	9
Cascade/Light Re-Fill Unit (One Time)	10	6	1	7	2	9
Equipment Acquisition Costs (unspecified)	10	6	1	7	2	9
Equipment Operations and Maintenance Costs (unspecified)	10	6	1	7	2	9
General Apparatus/Equipment Subtotal	-	-	-	-	-	-
Helicopters						
Equipment	-	-	-	-	-	-
	30	26	21	16	11	7
	30	26	21	16	11	7

Personnel	~	~	~	~	~	~
	~	~	~	~	~	~
	~	~	~	~	~	~
	~	~	~	~	~	~
Annual Training Costs	~	~	~	~	~	~
	~	~	~	~	~	~
	~	~	~	~	~	~
Annual Operations Costs	~	~	~	~	~	~
	~	~	~	~	~	~
	~	~	~	~	~	~
Annual Storage Costs	~	~	~	~	~	~
	~	~	~	~	~	~
	~	~	~	~	~	~
Helicopters Subtotal	~	~	~	~	~	~
General Communications Requirements						
Tower	25	21	16	11	6	2
Microwave System	25	21	16	11	6	2
Radios for all personnel	10	6	1	7	2	9
Batteries for radios	3	3	2	1	~	~
Battery Analyzer	5	1	2	3	4	~
Bank Chargers	5	1	2	3	4	~
SNACC Operating System Cost	5	1	2	3	4	~
Capitol Buy-In (One time fee)	~	~	~	~	~	~
Haz-Mat In-Suit Communications	10	6	1	7	2	9
Reverse 911 Notification System	15	11	6	1	12	8
Radiological Public Alert System	15	11	6	1	12	8
Subtotal General Communications Requirements	~	~	~	~	~	~

General Personnel Requirements						
Deputy Chief	~	~	~	~	~	~
Assistant Chief	~	~	~	~	~	~
Battalion Chief	~	~	~	~	~	~
Captain	~	~	~	~	~	~
Captain (Instructor)	~	~	~	~	~	~
Engineer	~	~	~	~	~	~
Engineer (Instructor)	~	~	~	~	~	~
Firefighter	~	~	~	~	~	~
Firefighter (Instructor)	~	~	~	~	~	~
Paramedics	~	~	~	~	~	~
Paramedics (Instructor)	~	~	~	~	~	~
Training Officers	~	~	~	~	~	~
Training Instructors	~	~	~	~	~	~
Administrative Specialist	~	~	~	~	~	~
Public Information Officer	~	~	~	~	~	~
Mechanics	~	~	~	~	~	~
Materials Controller	~	~	~	~	~	~
Dispatcher	~	~	~	~	~	~
Alarm Office Dispatcher	~	~	~	~	~	~
Escort/Inspection Personnel	~	~	~	~	~	~
Radiation Safety Officer	~	~	~	~	~	~
Warehouse Employees (Cadets)	~	~	~	~	~	~
Subtotal General Personnel Requirements	~	~	~	~	~	~
Staff Training Requirements						
Haz Mat Specialty Training - Captains (Initial)	100	96	91	86	81	77
Haz Mat Specialty Training - Paramedics (Initial)	100	96	91	86	81	77
Haz Mat Specialty Training - Engineers (Initial)	100	96	91	86	81	77

Haz Mat Specialty Training - Firefighters (Initial)	100	96	91	86	81	77
Haz Mat Specialty Training - Battalion Chiefs (Initial)	100	96	91	86	81	77
Haz Mat Specialty Training - Captains (Annual)	~	~	~	~	~	~
Haz Mat Specialty Training - Paramedics (Annual)	~	~	~	~	~	~
Haz Mat Specialty Training - Engineers (Annual)	~	~	~	~	~	~
Haz Mat Specialty Training - Firefighters (Annual)	~	~	~	~	~	~
Haz Mat Specialty Training - Battalion Chiefs (Annual)	~	~	~	~	~	~
Radiological Refresher Training - Battalion Chiefs (Annual)	~	~	~	~	~	~
Radiological Refresher Training - Fire Training Officer (Annual)	~	~	~	~	~	~
Radiological Refresher Training - Captain (Annual)	~	~	~	~	~	~
Radiological Refresher Training - Paramedic (Annual)	~	~	~	~	~	~
Radiological Refresher Training - Engineer (Annual)	~	~	~	~	~	~
Radiological Refresher Training - Firefighter (Annual)	~	~	~	~	~	~
Recruit Academy Training - Books	100	96	91	86	81	77
Recruit Academy Training - Turnouts	100	96	91	86	81	77
Recruit Academy Training - Supplies	100	96	91	86	81	77
Recruit Academy Training - Drill Filed Costs	100	96	91	86	81	77
Recruit Academy Training - Books	100	96	91	86	81	77
Recruit Academy Training - Turnouts	100	96	91	86	81	77
Recruit Academy Training - Supplies	100	96	91	86	81	77
Recruit Academy Training - Drill Filed Costs	100	96	91	86	81	77
Radiation Training	~	~	~	~	~	~
Mass Evacuation Training	~	~	~	~	~	~
Suppression Planning (unspecified)	~	~	~	~	~	~

Training & Planning

(unspecified)	-	-	-	-	-	-
One-time (Initial) Training Hours (Unspecified)	100	96	91	86	81	77
Recurring (Annual) Training (Hours) (Unspecified)	-	-	-	-	-	-
Subtotal Training Requirements	-	-	-	-	-	-
Planning & Administrative Costs						
Development of Emergency Response Plan	10	6	1	7	2	9
Amendment of Emergency Response Plan	-	-	-	-	-	-
Public Information Program	-	-	-	-	-	-
Subtotal Planning & Administrative Costs	-	-	-	-	-	-
Support Personnel Vehicles						
Flat-Bed Truck, Heavy Duty	7	3	6	1	4	-
Mechanic Truck	7	3	6	1	4	-
Bus	7	3	6	1	4	-
Van	7	3	6	1	4	-
Suburban	7	3	6	1	4	-
Sedan	7	3	6	1	4	-
Unit upgrades (Code 3, Equip, etc)	7	3	6	1	4	-
Support Personnel Vehicles Subtotal	-	-	-	-	-	-
Related Annual Fuel Costs						
Engine	-	-	-	-	-	-
Truck	-	-	-	-	-	-
Rescue	-	-	-	-	-	-
Heavy Rescue	-	-	-	-	-	-
Haz-Mat	-	-	-	-	-	-
Mobile Air	-	-	-	-	-	-
Suburban	-	-	-	-	-	-
Sedan	-	-	-	-	-	-

Mechanics Truck	-	-	-	-	-	-
Flat-Bed Truck	-	-	-	-	-	-
Bus (40 Passenger)	-	-	-	-	-	-
Subtotal Annual Fuel Costs	-	-	-	-	-	-
Related SBCA Air Support Costs						
Air Pack Backpacks	15	11	6	1	12	8
SCBA Bottles	15	11	6	1	12	8
Haz-Mat Air Pack Backpacks	15	11	6	1	12	8
One Hour SCBA Bottles	15	11	6	1	12	8
SCBA Air Mask	15	11	6	1	12	8
RIT Bags	15	11	6	1	12	8
S2 Rescue Regulator w/ Y Conn	15	11	6	1	12	8
Revitox Rescue Mask	15	11	6	1	12	8
SBCA Apparatus (unspecified)	15	11	6	1	12	8
SBCA Air Support Cost Subtotal	-	-	-	-	-	-
Police Training Requiems						
Staff Salaries	-	-	-	-	-	-
Training Costs	-	-	-	-	-	-
Subtotal Police Department Requirements	-	-	-	-	-	-
Police Equipment Requirements						
Equipment Costs - Ion Chambers Survey Meter	15	11	6	1	12	8
Equipment Costs - General	-	-	-	-	-	-
Subtotal Police Equipment Requirements						
TOTAL COSTS						

APPENDIX G Cost Inflation Rate Table

FIRE STATIONS	Base Year	Year 5	Year 10	Year 15	Year 20	Year 24
Station Construction Cost						
Estimated Station Cost	100%	117%	142%	173%	211%	246%
Estimated Land Cost (5 acre parcel)	100%	117%	142%	173%	211%	246%
Fixtures, Furnishings, & Equip	100%	117%	142%	173%	211%	246%
Site Development/Upgrades	100%	117%	142%	173%	211%	246%
Fuel Tank Farm (initial cost)	100%	117%	142%	173%	211%	246%
Station Construction Cost (unspecified)	100%	117%	142%	173%	211%	246%
Station Construction Subtotal						
Station Operations & Maintenance Costs (not otherwise specified)	100%	117%	142%	173%	211%	246%
Apparatus						
CBRNE Engine w/ Equipment	100%	117%	142%	173%	211%	246%
Truck w/ Equipment	100%	117%	142%	173%	211%	246%
Rescue w/ Equipment	100%	117%	142%	173%	211%	246%
Haz-Mat Unit w/ Equipment	100%	117%	142%	173%	211%	246%
Heavy Rescue Engine w/ Equip	100%	117%	142%	173%	211%	246%
Mobile Air Unit w/ Equipment	100%	117%	142%	173%	211%	246%
Disaster Mitigation Apparatus 1	100%	117%	142%	173%	211%	246%
Disaster Mitigation Apparatus 2	100%	117%	142%	173%	211%	246%
Apparatus Subtotal						
Suppression Personnel						
Battalion Chief	100%	117%	142%	173%	211%	246%
Captain	100%	117%	142%	173%	211%	246%
Engineer	100%	117%	142%	173%	211%	246%
Firefighter	100%	117%	142%	173%	211%	246%
Suppression Personnel Subtotal						
Communications						
Tower	100%	117%	142%	173%	211%	246%
Microwave System	100%	117%	142%	173%	211%	246%
Radios for all personnel	100%	117%	142%	173%	211%	246%
Batteries for radios	100%	117%	142%	173%	211%	246%
Battery Analyzer	100%	117%	142%	173%	211%	246%
Haz-Mat In-Suit Communicator	100%	117%	142%	173%	211%	246%
Bank Chargers	100%	117%	142%	173%	211%	246%
SNACC Operating System Cost	100%	117%	142%	173%	211%	246%
Capitol Buy-In (One time fee)	100%	117%	142%	173%	211%	246%

Annual Telephone Cost	100%	117%	142%	173%	211%	246%
Communications Subtotal	100%	100%	100%	100%	100%	100%
Air Support (SCBA)						
SCBA Backpacks	100%	117%	142%	173%	211%	246%
SCBA Bottles- 30 minute	100%	117%	142%	173%	211%	246%
Haz-Mat SCBA Backpacks	100%	117%	142%	173%	211%	246%
SCBA Bottles- 1 hour	100%	117%	142%	173%	211%	246%
SCBA Mask	100%	117%	142%	173%	211%	246%
RIT Bags	100%	117%	142%	173%	211%	246%
SCBA Annual Operating Costs	100%	117%	142%	173%	211%	246%
Supervisor for SCBA Division	100%	117%	142%	173%	211%	246%
Air Support (SCBA) Subtotal						
Support Vehicles						
Suburban	100%	117%	142%	173%	211%	246%
Sedan	100%	117%	142%	173%	211%	246%
Van	100%	117%	142%	173%	211%	246%
Pick-up Flat Bed Truck	100%	117%	142%	173%	211%	246%
Mechanics Truck	100%	117%	142%	173%	211%	246%
Unit upgrades (Code 3, Equip, etc)	100%	117%	142%	173%	211%	246%
Support Vehicle Subtotal						
Support Personnel						
Deputy Chief	100%	117%	142%	173%	211%	246%
Assistant Chief	100%	117%	142%	173%	211%	246%
Materials Controller	100%	117%	142%	173%	211%	246%
Mechanic	100%	117%	142%	173%	211%	246%
Public Information Officers	100%	117%	142%	173%	211%	246%
Alarm Office Dispatcher	100%	117%	142%	173%	211%	246%
Escort/Inspection Personnel	100%	117%	142%	173%	211%	246%
Radiation Safety Officer	100%	117%	142%	173%	211%	246%
Support Personnel Subtotal						
Miscellaneous						
Warehouse Inventory	100%	117%	142%	173%	211%	246%
Turnout Ensemble	100%	117%	142%	173%	211%	246%
Cleaning/Repairing of Turnouts	100%	117%	142%	173%	211%	246%
Tank Farm Operating Expenses	100%	117%	142%	173%	211%	246%
Annual Training Cost	100%	117%	142%	173%	211%	246%
Annual Services and Supplies	100%	117%	142%	173%	211%	246%
Vehicle Maintenance Cost	100%	117%	142%	173%	211%	246%
Fuel Cost	100%	117%	142%	173%	211%	246%
Recruit Academy Cost	100%	117%	142%	173%	211%	246%
Miscellaneous Subtotal	100%	100%	100%	100%	100%	100%
REGIONAL TRAINING CENTER						

Regional Training Center Construction Cost						
Estimated Facility Construction Cost	100%	117%	142%	173%	211%	246%
Estimated Land Acquisition Cost	100%	117%	142%	173%	211%	246%
Site Development/ Upgrades	100%	117%	142%	173%	211%	246%
Fuel Tank Farm (Initial Cost)	100%	117%	142%	173%	211%	246%
Training Center Construction Cost (Unspecified)	100%	117%	142%	173%	211%	246%
Construction Cost Subtotal	100%	100%	100%	100%	100%	100%
Personnel						
Deputy Chief	100%	117%	142%	173%	211%	246%
Assistant Chief	100%	117%	142%	173%	211%	246%
Administrative Battalion Chief	100%	117%	142%	173%	211%	246%
Training Officers	100%	117%	142%	173%	211%	246%
Training Instructors	100%	117%	142%	173%	211%	246%
Administrative Specialist	100%	117%	142%	173%	211%	246%
Materials Controller	100%	117%	142%	173%	211%	246%
Mechanic	100%	117%	142%	173%	211%	246%
Dispatchers	100%	117%	142%	173%	211%	246%
Warehouse Employees (Cadets)	100%	117%	142%	173%	211%	246%
Personnel Subtotal	100%	100%	100%	100%	100%	100%
Communications						
Tower	100%	117%	142%	173%	211%	246%
Microwave System	100%	117%	142%	173%	211%	246%
Radios for all personnel	100%	117%	142%	173%	211%	246%
Batteries for radios	100%	117%	142%	173%	211%	246%
Battery Analyzer	100%	117%	142%	173%	211%	246%
Bank Chargers	100%	117%	142%	173%	211%	246%
SNACC Operating System Cost	100%	117%	142%	173%	211%	246%
Capitol Buy-In (One time fee)	100%	117%	142%	173%	211%	246%
Annual Telephone Cost	100%	117%	142%	173%	211%	246%
Communications Subtotal	100%	100%	100%	100%	100%	100%
Training						
Yearly training for Tech Sta	100%	117%	142%	173%	211%	246%
Initial training for Department	100%	117%	142%	173%	211%	246%
On-going training for Dept	100%	117%	142%	173%	211%	246%
Recruit Academy	100%	117%	142%	173%	211%	246%
Training Subtotal	100%	100%	100%	100%	100%	100%
Equipment/Supplies						
CBRNE Engine Equipment	100%	117%	142%	173%	211%	246%
Heavy Rescue Equipment	100%	117%	142%	173%	211%	246%
Truck Equipment	100%	117%	142%	173%	211%	246%

Haz-Mat Equipment	100%	117%	142%	173%	211%	246%
Rescue Equipment	100%	117%	142%	173%	211%	246%
Equipment/Supplied Subtotal	100%	100%	100%	100%	100%	100%
Air Support (SCBA)						
SCBA Backpacks	100%	117%	142%	173%	211%	246%
SCBA Bottles- 30 minute	100%	117%	142%	173%	211%	246%
SCBA Air Mask	100%	117%	142%	173%	211%	246%
Haz-Mat SCBA Backpacks	100%	117%	142%	173%	211%	246%
SCBA Bottles- 1 hour	100%	117%	142%	173%	211%	246%
RIT Bags	100%	117%	142%	173%	211%	246%
Yearly operating cost for system	100%	117%	142%	173%	211%	246%
Air Support (SCBA) Subtotal	100%	100%	100%	100%	100%	100%
Support Personnel Vehicles						
Flat-Bed Truck, Heavy Duty	100%	117%	142%	173%	211%	246%
Mechanic Truck	100%	117%	142%	173%	211%	246%
Bus	100%	117%	142%	173%	211%	246%
Van	100%	117%	142%	173%	211%	246%
Suburban	100%	117%	142%	173%	211%	246%
Sedan	100%	117%	142%	173%	211%	246%
Unit upgrades (Code 3, Equip, etc)	100%	117%	142%	173%	211%	246%
Support Personnel Vehicles Subtotal	100%	100%	100%	100%	100%	100%
Miscellaneous						
Annual Telephone/Satellite Cost	100%	117%	142%	173%	211%	246%
Fuel Tank Farm	100%	117%	142%	173%	211%	246%
Fuel (LPG/Gas/Diesel)	100%	117%	142%	173%	211%	246%
General Operating Expenses	100%	117%	142%	173%	211%	246%
Fuel Cost (vehicles only)	100%	117%	142%	173%	211%	246%
Miscellaneous Subtotal	100%	100%	100%	100%	100%	100%
Facility Construction and Development Costs						
Facility Construction Costs	100%	117%	142%	173%	211%	246%
Land Acquisition Costs	100%	117%	142%	173%	211%	246%
Information Technology and Communications Infrastructure	100%	117%	142%	173%	211%	246%
Subtotal Facility Construction and Development Costs	100%	100%	100%	100%	100%	100%
Facility Staffing and Operational Expenses						
EOC Managers	100%	117%	142%	173%	211%	246%
Emergency Management Analysts	100%	117%	142%	173%	211%	246%
Clerical/Office Specialists	100%	117%	142%	173%	211%	246%
On-site Security	100%	117%	142%	173%	211%	246%
Personnel (unspecified)	100%	117%	142%	173%	211%	246%

General Operating Expenses	100%	117%	142%	173%	211%	246%
Subtotal Facility Staffing and Operational Expenses	100%	100%	100%	100%	100%	100%
Training Costs						
Senior & Elected Official Workshops	100%	117%	142%	173%	211%	246%
Emergency Management Staff Training	100%	117%	142%	173%	211%	246%
Public Affairs Office Staff Training	100%	117%	142%	173%	211%	246%
Public Works/Field Operations Staff Training	100%	117%	142%	173%	211%	246%
Subtotal Training Costs	100%	100%	100%	100%	100%	100%
Public Awareness Program Costs						
Brochures and other public education materials	100%	117%	142%	173%	211%	246%
Video production	100%	117%	142%	173%	211%	246%
Community awareness courses	100%	117%	142%	173%	211%	246%
Subtotal Public Awareness Program Costs	100%	100%	100%	100%	100%	100%
APCO Communications Network						
Estimated Facility Construction Cost	100%	117%	142%	173%	211%	246%
APCO Communications Network Subtotal	100%	100%	100%	100%	100%	100%
General Apparatus/Equipment						
Turnouts/Safety Equipment	100%	117%	142%	173%	211%	246%
CBRNE Engine	100%	117%	142%	173%	211%	246%
Heavy Rescue Engine	100%	117%	142%	173%	211%	246%
Truck Equipment	100%	117%	142%	173%	211%	246%
Rescue Equipment	100%	117%	142%	173%	211%	246%
Haz-Mat Equipment	100%	117%	142%	173%	211%	246%
Mobile Air Unit	100%	117%	142%	173%	211%	246%
Andros Wolverine Robot	100%	117%	142%	173%	211%	246%
Andros F6A Robot	100%	117%	142%	173%	211%	246%
Disaster Medical Facility	100%	117%	142%	173%	211%	246%
Mobile Oxygen Storage Tanks	100%	117%	142%	173%	211%	246%
Tx Mass Casualty Decon Unit	100%	117%	142%	173%	211%	246%
Portable Decon Tents	100%	117%	142%	173%	211%	246%
Semi-Trucks	100%	117%	142%	173%	211%	246%
Flat Bed Trailer	100%	117%	142%	173%	211%	246%
Forklift (10,000 lbs capacity)	100%	117%	142%	173%	211%	246%
Disaster Mitigation Apparatus 1	100%	117%	142%	173%	211%	246%
Disaster Mitigation Apparatus 2	100%	117%	142%	173%	211%	246%
Radiological Survey Meters (Monitors)	100%	117%	142%	173%	211%	246%
Radiological Survey Meters (Annual Calibration)	100%	117%	142%	173%	211%	246%

Personal Victoreen Dosimeters (Monitors)	100%	117%	142%	173%	211%	246%
Personal Victoreen Dosimeters (Annual Calibration)	100%	117%	142%	173%	211%	246%
Personal Victoreen Dosimeters (Revealer Dosimeter Reader Kit)	100%	117%	142%	173%	211%	246%
Cascade/Light Re-Fill Unit (One Time)	100%	117%	142%	173%	211%	246%
Equipment Acquisition Costs (unspecified)	100%	117%	142%	173%	211%	246%
Equipment Operations and Maintenance Costs (unspecified)	100%	117%	142%	173%	211%	246%
General Apparatus/Equipment Subtotal	100%	100%	100%	100%	100%	100%
Helicopters						
Equipment	100%	100%	100%	100%	100%	100%
Bell Augusta AB 139	100%	117%	142%	173%	211%	246%
Equipment Cost	100%	117%	142%	173%	211%	246%
Personnel	100%	100%	100%	100%	100%	100%
Pilot(s)	100%	117%	142%	173%	211%	246%
Mechanics	100%	117%	142%	173%	211%	246%
Crew Chief	100%	117%	142%	173%	211%	246%
Annual Training Costs	100%	100%	100%	100%	100%	100%
Crew Training	100%	117%	142%	173%	211%	246%
FAA/ Aircraft Recertification	100%	117%	142%	173%	211%	246%
Annual Operations Costs	100%	100%	100%	100%	100%	100%
Operating Cost	100%	117%	142%	173%	211%	246%
Insurance Cost	100%	117%	142%	173%	211%	246%
Annual Storage Costs	100%	100%	100%	100%	100%	100%
Hanger Cost	100%	117%	142%	173%	211%	246%
Warehouse Cost	100%	117%	142%	173%	211%	246%
Helicopters Subtotal	100%	100%	100%	100%	100%	100%
General Communications Requirements						
Tower	100%	117%	142%	173%	211%	246%
Microwave System	100%	117%	142%	173%	211%	246%
Radios for all personnel	100%	117%	142%	173%	211%	246%
Batteries for radios	100%	117%	142%	173%	211%	246%
Battery Analyzer	100%	117%	142%	173%	211%	246%
Bank Chargers	100%	117%	142%	173%	211%	246%
SNACC Operating System Cost	100%	117%	142%	173%	211%	246%
Capitol Buy-In (One time fee)	100%	117%	142%	173%	211%	246%
Haz-Mat In-Suit Communications	100%	117%	142%	173%	211%	246%
Reverse 911 Notification System	100%	117%	142%	173%	211%	246%
Radiological Public Alert System	100%	117%	142%	173%	211%	246%
Subtotal General Communications Requirements	100%	100%	100%	100%	100%	100%
General Personnel Requirements						

Deputy Chief	100%	117%	142%	173%	211%	246%
Assistant Chief	100%	117%	142%	173%	211%	246%
Battalion Chief	100%	117%	142%	173%	211%	246%
Captain	100%	117%	142%	173%	211%	246%
Captain (Instructor)	100%	117%	142%	173%	211%	246%
Engineer	100%	117%	142%	173%	211%	246%
Engineer (Instructor)	100%	117%	142%	173%	211%	246%
Firefighter	100%	117%	142%	173%	211%	246%
Firefighter (Instructor)	100%	117%	142%	173%	211%	246%
Paramedics	100%	117%	142%	173%	211%	246%
Paramedics (Instructor)	100%	117%	142%	173%	211%	246%
Training Officers	100%	117%	142%	173%	211%	246%
Training Instructors	100%	117%	142%	173%	211%	246%
Administrative Specialist	100%	117%	142%	173%	211%	246%
Public Information Officer	100%	117%	142%	173%	211%	246%
Mechanics	100%	117%	142%	173%	211%	246%
Materials Controller	100%	117%	142%	173%	211%	246%
Dispatcher	100%	117%	142%	173%	211%	246%
Alarm Office Dispatcher	100%	117%	142%	173%	211%	246%
Escort/Inspection Personnel	100%	117%	142%	173%	211%	246%
Radiation Safety Officer	100%	117%	142%	173%	211%	246%
Warehouse Employees (Cadets)	100%	117%	142%	173%	211%	246%
Subtotal General Personnel Requirements	100%	100%	100%	100%	100%	100%
Staff Training Requirements						
Haz Mat Specialty Training - Captains (Initial)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Paramedics (Initial)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Engineers (Initial)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Firefighters (Initial)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Battalion Chiefs (Initial)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Captains (Annual)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Paramedics (Annual)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Engineers (Annual)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Firefighters (Annual)	100%	117%	142%	173%	211%	246%
Haz Mat Specialty Training - Battalion Chiefs (Annual)	100%	117%	142%	173%	211%	246%
Radiological Refresher Training - Battalion Chiefs (Annual)	100%	117%	142%	173%	211%	246%
Radiological Refresher Training - Fire Training Officer (Annual)	100%	117%	142%	173%	211%	246%
Radiological Refresher Training -	100%	117%	142%	173%	211%	246%

Captain (Annual)						
Radiological Refresher Training - Paramedic (Annual)	100%	117%	142%	173%	211%	246%
Radiological Refresher Training - Engineer (Annual)	100%	117%	142%	173%	211%	246%
Radiological Refresher Training - Firefighter (Annual)	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Books	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Turnouts	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Supplies	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Drill Filed Costs	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Books	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Turnouts	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Supplies	100%	117%	142%	173%	211%	246%
Recruit Academy Training - Drill Filed Costs	100%	117%	142%	173%	211%	246%
Radiation Training	100%	117%	142%	173%	211%	246%
Mass Evacuation Training	100%	117%	142%	173%	211%	246%
Suppression Planning (unspecified)	100%	117%	142%	173%	211%	246%
Training & Planning (unspecified)	100%	117%	142%	173%	211%	246%
One-time (Initial) Training Hours (Unspecified)	100%	117%	142%	173%	211%	246%
Recurring (Annual) Training (Hours) (Unspecified)	100%	117%	142%	173%	211%	246%
Subtotal Training Requirements	100%	100%	100%	100%	100%	100%
Planning & Administrative Costs						
Development of Emergency Response Plan	100%	117%	142%	173%	211%	246%
Amendment of Emergency Response Plan	100%	117%	142%	173%	211%	246%
Public Information Program	100%	117%	142%	173%	211%	246%
Subtotal Planning & Administrative Costs	100%	100%	100%	100%	100%	100%
Support Personnel Vehicles						
Flat-Bed Truck, Heavy Duty	100%	117%	142%	173%	211%	246%
Mechanic Truck	100%	117%	142%	173%	211%	246%
Bus	100%	117%	142%	173%	211%	246%
Van	100%	117%	142%	173%	211%	246%
Suburban	100%	117%	142%	173%	211%	246%
Sedan	100%	117%	142%	173%	211%	246%
Unit upgrades (Code 3, Equip, etc)	100%	117%	142%	173%	211%	246%
Support Personnel Vehicles Subtotal	100%	100%	100%	100%	100%	100%
Related Annual Fuel Costs						
Engine	100%	117%	142%	173%	211%	246%
Truck	100%	117%	142%	173%	211%	246%
Rescue	100%	117%	142%	173%	211%	246%
Heavy Rescue	100%	117%	142%	173%	211%	246%

Haz-Mat	100%	117%	142%	173%	211%	246%
Mobile Air	100%	117%	142%	173%	211%	246%
Suburban	100%	117%	142%	173%	211%	246%
Sedan	100%	117%	142%	173%	211%	246%
Mechanics Truck	100%	117%	142%	173%	211%	246%
Flat-Bed Truck	100%	117%	142%	173%	211%	246%
Bus (40 Passenger)	100%	117%	142%	173%	211%	246%
Subtotal Annual Fuel Costs	100%	100%	100%	100%	100%	100%
Related SBCA Air Support Costs						
Air Pack Backpacks	100%	117%	142%	173%	211%	246%
SCBA Bottles	100%	117%	142%	173%	211%	246%
Haz-Mat Air Pack Backpacks	100%	117%	142%	173%	211%	246%
One Hour SCBA Bottles	100%	117%	142%	173%	211%	246%
SCBA Air Mask	100%	117%	142%	173%	211%	246%
RIT Bags	100%	117%	142%	173%	211%	246%
S2 Rescue Regulator w/ Y Conn	100%	117%	142%	173%	211%	246%
Revitox Rescue Mask	100%	117%	142%	173%	211%	246%
SBCA Apparatus (unspecified)	100%	117%	142%	173%	211%	246%
SBCA Air Support Cost Subtotal	100%	100%	100%	100%	100%	100%
Police Training Requiems						
Staff Salaries	100%	117%	142%	173%	211%	246%
Training Costs	100%	117%	142%	173%	211%	246%
Subtotal Police Department Requirements	100%	100%	100%	100%	100%	100%
Police Equipment Requirements						
Equipment Costs - Ion Chambers Survey Meter	100%	104%	104%	104%	104%	104%
Equipment Costs - General	100%	104%	104%	104%	104%	104%
Subtotal Police Equipment Requirements	100%	100%	100%	100%	100%	100%

APPENDIX H Short Form

URBAN ENVIRONMENTAL RESEARCH FISCAL IMPACT ASSESSMENT MODEL								
PUBLIC SAFETY MODULE - FIRE SERVICES								
ENTITY REQUIREMENT SHORT FORM								
			Short-Form Requirement Summary					
			Clark County	Las Vegas	North Las Vegas	Henderson	Mesquite	
PART I: FACILITY ADDITIONS								
How Many Additional Fire Stations			0	1	3	2	1	
	Apply Short Form Assumptions for Stations							
Will You Require a Regional Trainir			0	No	No	No	No	
	Apply Short Form Assumptions for Training Centers							
PART II: AD HOC REQUIREMENTS - FIRE								
	Apply Short Form Ad Hoc Requirements							
Outside of Those Staffing and Additional Station/Regional Training Center Will You Require Any of the Following?								
	Deputy Chief		0	0	0	0	0	
	Assistant Chief		0	0	0	0	0	
	Battalion Chief		0	0	0	0	0	
	Captain		0	0	0	0	0	
	Engineer		0	0	0	0	0	
	Firefighter		0	0	0	0	0	
	Paramedics		0	0	0	0	0	
	Training Officers		0	0	0	0	0	
	Training Instructors		0	0	0	0	0	
	Administrative Specialis		0	0	0	0	0	
	Public Information Offic		0	0	0	0	0	
	Mechanics		0	0	0	0	0	
	Materials Controller		0	0	0	0	0	
	Dispatcher		0	0	0	0	0	
	Alarm Office Dispatche		0	0	0	0	0	
	Escort/Inspection Pers		0	0	0	0	0	
	Radiation Safety Office		0	0	0	0	0	
	Warehouse Employees		0	0	0	0	0	
Outside of tx								
	Radios		0	0	0	0	0	
	Haz-Mat In-Suit Commu		0	0	0	0	0	
	Communications Towe		0	0	0	0	0	
	Microwave Systems		0	0	0	0	0	
	Reverse 911 Notification System							
	Turnouts/Safety Equip		0	0	0	0	0	
	CBRNE Engine		0	0	0	0	0	
	Heavy Rescue Engine		0	0	0	0	0	
	Truck Equipment		0	0	0	0	0	
	Rescue Equipment		0	0	0	0	0	
	RIT Bags		0	0	0	0	0	
	Haz-Mat Equipment		0	0	0	0	0	
	Mobile Air Unit		0	0	0	0	0	
	Andros Wolverine Rob		0	0	0	0	0	
	Andros F6A Robot		0	0	0	0	0	
	Disaster Medical Facilit		0	0	0	0	0	
	Mobile Oxygen Storage		0	0	0	0	0	
	TxMass Casualty Decc		0	0	0	0	0	
	Semi-Trucks		0	0	0	0	0	
	Flat Bed Trailer		0	0	0	0	0	
	Forklift (10,000 lbs capa		0	0	0	0	0	
	Disaster Mitigation Ap		0	0	0	0	0	
	Disaster Mitigation Ap		0	0	0	0	0	
	Radiological Survey Meters - Victoreen 450B							
	Personal Victoreen Dosimeters							
	Helicopters		0	0	0	0	0	
	Van		0	0	0	0	0	
	Sedan and/or Pick-up T		0	0	0	0	0	

APPENDIX I Summary Model for Inputting from Short Form

URBAN ENVIRONMENTAL RESEARCH FISCAL IMPACT ANALYSIS											
PUBLIC SAFETY MODULE - FIRE SERVICES											
ENTITY REQUIREMENT SUMMARY MODEL (DETAIL)											
		Requirement Summary (Total)					Requirement Summary (Per Facility Estimated)				
		Clark County	Las Vegas	North Las Vegas	Henderson	Mesquite	Clark County	Las Vegas	North Las Vegas	Henderson	Mesquite
			Apply Short Form Clear	Apply Short Clear	Apply Short Clear	Apply Short Clear					
How May Stations Will You Be Required to Construct?											
		3.0	4	2	0	0	n.a.	n.a.	n.a.	n.a.	n.a.
What Types of Support Apparatus Will You Require?											
CBRNE Engine		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Truck		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Rescue		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Haz-Mat Unit		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Heavy Rescue Engine		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Mobile Air Unit		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Disaster Mitigation Apparatus 1		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Disaster Mitigation Apparatus 2		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
On Average, What is the Staffing Requirement Per Station?											
Battalion Chief Chiefs		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Captains		39.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	n.a.	n.a.
Engineers		57.0	0.0	0.0	0.0	0.0	19.0	0.0	0.0	n.a.	n.a.
Firefighters		87.0	0.0	0.0	0.0	0.0	29.0	0.0	0.0	n.a.	n.a.
What Communications Equipment Will You Require?											
Tower		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Microwave System		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Radios		75.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	n.a.	n.a.
Batteries for radios		150.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	n.a.	n.a.
Battery Analyzer		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Haz-Mat In-Suit Communicator		30.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	n.a.	n.a.
Bank Chargers		9.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	n.a.	n.a.
What Air Support Equipment/Additional Staffing Will You Require?											
SCBA Backpacks		66.0	0.0	0.0	0.0	0.0	22.0	0.0	0.0	n.a.	n.a.
SCBA Bottles - 30 minute		198.0	0.0	0.0	0.0	0.0	66.0	0.0	0.0	n.a.	n.a.
Haz-Mat SCBA Backpacks		24.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	n.a.	n.a.
SCBA Bottles - 1 hour		72.0	0.0	0.0	0.0	0.0	24.0	0.0	0.0	n.a.	n.a.
SCBA Mask		218.0	0.0	0.0	0.0	0.0	72.7	0.0	0.0	n.a.	n.a.
RIT Bags		15.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	n.a.	n.a.
Supervisor for SCBA Division		1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	n.a.	n.a.
What Type of Support Vehicles Will You Require?											
Suburban		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Sedan		20.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	n.a.	n.a.
Van		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Pick-up Flat Bed Truck		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Mechanics Truck		1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	n.a.	n.a.
Unit upgrades (Code 3, Equip, et		30.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	n.a.	n.a.
What Types of Administrative Support Personnel Will You Require?								0.0			
Deputy Chief		1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	n.a.	n.a.
Assistant Chief		1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	n.a.	n.a.
Materials Controller		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Mechanic		1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	n.a.	n.a.
Public Information Officers		3.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	n.a.	n.a.
Alarm Office Dispatcher		2.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	n.a.	n.a.
Escort/Inspection Personnel		20.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	n.a.	n.a.
Radiation Safety Officer		10.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	n.a.	n.a.
What Other Station-related Miscellaneous Costs To You Anticipate Incurring?											
Turnout Ensemble		188.0	0.0	0.0	0.0	0.0	62.7	0.0	0.0	n.a.	n.a.
Cleaning/Repairing of Turnouts		188.0	0.0	0.0	0.0	0.0	62.7	0.0	0.0	n.a.	n.a.
How Many Regional Training Centers Will You Require?											
		1.0	1	1	0	0	1.0	1.0	1.0	0	0
What Will Be the Regional Training Center Staffing Requirements?											
Deputy Chief		1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0	0
Assistant Chief		1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0	0
Administrative Battalion Chief		1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0	0
Training Officers		3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0	0
Training Instructors		6.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0	0

Ad Hoc Requirements - Fire											
Personnel											
	Deputy Chief	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Assistant Chief	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Battalion Chief	0.0	3.0	3.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Captain	0.0	9.0	6.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Captain (Instructor)	0.0	6.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Engineer	0.0	9.0	6.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Engineer (Instructor)	0.0	6.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Firefighter	0.0	18.0	18.0	0.0	24.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Firefighter (Instructo	0.0	12.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Paramedics	0.0	13.5	18.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Paramedics (Instruct	0.0	6.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Training Officers	0.0	7.0	2.0	0.0	1.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Training Instructors	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Administrative Speci	0.0	0.0	0.0	0.0	1.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Public Information O	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Mechanics	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Materials Controller	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Dispatcher	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Alarm Office Dispatc	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Escort/Inspection Pe	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiation Safety Offi	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Warehouse Employe	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
Staff Training											
	Haz Mat Specialty Tı	0.0	24.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Haz Mat Specialty Tı	0.0	30.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Haz Mat Specialty Tı	0.0	24.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Haz Mat Specialty Tı	0.0	54.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Haz Mat Specialty Tı	0.0	5.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Refresh	0.0	5.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Refresh	0.0	8.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Refresh	0.0	24.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Refresh	0.0	30.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Refresh	0.0	9.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Refresh	0.0	54.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Recruit Academy Tra	0.0	119.5	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Recruit Academy Tra	0.0	119.5	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Recruit Academy Tra	0.0	119.5	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Recruit Academy Tra	0.0	119.5	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiation Training	0.0	0.0	0.0	20.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Mass Evacuation Tra	0.0	0.0	0.0	10.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Suppression Plannin	n.a.	n.a.	Y	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Training & Planning	n.a.	n.a.	Y	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	EMS Training (unspe	n.a.	n.a.	Y	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	One-time (Initial) Tra	0.0	0.0	0.0	0.0	240.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Recurring (Annual) T	0.0	0.0	0.0	0.0	8.0	n.a.	n.a.	n.a.	n.a.	n.a.
Planning & Administrative											
	Develop Emergency	n.a.	Y	Y	Y	Y	n.a.	n.a.	n.a.	n.a.	n.a.
	Amend Emergency R	n.a.	Y	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Public Information Pı	n.a.	n.a.	n.a.	Y	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Helicopters		0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
Communications Equipment											
	Radios	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Haz-Mat In-Suit Con	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Communications Tov	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Microwave Systems	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Turnouts/Safety Equ	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Reverse 911 Notifica	0.0	1.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Radiological Public A	0.0	2.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
Apparatus/Equipment											
	Turnouts/Safety Equ	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	CBRNE Engine	0.0	4.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Heavy Rescue Engin	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Truck Equipment	0.0	4.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Rescue Equipment	0.0	4.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Haz-Mat Equipment	0.0	4.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Mobile Air Unit	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Andros Wolverine R	3.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Andros F6A Robot	3.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Disaster Medical Fac	3.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.
	Mobile Oxygen Stora	6.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.